THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XVII. No. 409—20th YEAR.] LONDON, JUNE 23, 1868. [Subscription per Ann. 15s. in Advance / 18s. Credit.] With SUPPLEMENT, Price 1s. 6d.

RAMSAY'S NEWCASTLE CANNEL COAL. Analysis by Dr. FYFE, M.D.:—
9746 cubic feet of gas per ton of coal.
26-candle gas.
13¼ cwt. coke per ton of coal.
N.B.—Ramsay's Cannel most resembles the Marquis of Lothian's Cannel, but superior as to coke.
RAMSAY'S PATENT CONDENSED COKE,
DO. GARESFIELD COKE.

RAMSAY'S FIRE-CLAY ARTICLES.
GAS-RETORTS, introduced 1828.
FIRE-BRICK WORKS, established 1804.
FIRE-CLAY SANITARY PIPES, CHIMNEY-TOPS, and all Goods made of Fire Clay.
The Fire Clay is worked from Blaydon Main Colliery, is of excellent quality, and no expense spared in perfecting every article.
The FIRE-BRICKS (marked "RAMSAY") are to be seen in all parts of the world, and the works are the most extensive in the Kingdom.
Manufactories: DERWENTHAUGH, SWALWELL, and HEBBURN QUAY. Offices: BROAD CHARE, NEWCASTLE-UPON-TYNE. Address, G. H. RAMSAY.

GEORGE GLOVER & CO.,
Patentees of the Standard Gasometers for the Government, and of the
IMPROVED DRY GAS-METERS.
These Meters are warranted to measure correctly and not to vary, and have come into general use more rapidly than any Meters hitherto manufactured.
1862.
CLASSES X. AND XXXI.

CLASS X.—"*For ingenuity, completeness, and efficiency of apparatus used in measuring gas, and for excellence of material and workmanship.*"
CLASS XXXI.—"*For superiority of construction and workmanship.*"
Particulars and lists of prices forwarded on application to Ranelagh Works, Ranelagh Road, Pimlico, LONDON, S.W.; 15, Market Street, MANCHESTER; or 127, Boulevard de Magenta, PARIS.

IMPROVED GASLIGHT.
Ample experience has proved that, by carburetting common gas, its illuminating power may be doubled or even tripled, and its consumpt greatly lessened. Wax candles and oil lamps in consequence are being rapidly superseded, and gas is now used in many private houses and mansions where formerly it was not tolerated.
Information as to the apparatus, fluids, &c., may be had of GEO. GLOVER and Co., or CARLESS, BLAGDEN, and Co., HACKNEY WICK, N.E.

COWEN'S PATENT FIRE-CLAY RETORTS.
JOSEPH COWEN and CO.,
BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,
Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS RETORTS and OTHER OBJECTS in FIRE-CLAY," and they have also been awarded in the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for "GAS RETORTS, FIRE-BRICKS, &c., for EXCELLENCE of QUALITY."
J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire-Bricks, and every other article in Fire-Clay are promptly executed at their Works as above.
COWEN'S GARESFIELD COALS.
Coal Office,
QUAY SIDE, NEWCASTLE-ON-TYNE.

FIRST PRIZE IN THE PARIS EXHIBITION.

JOHN RUSSELL AND CO.,
THE OLD TUBE WORKS,
CHURCH HILL, WEDNESBURY;
ALMA WORKS,
WALSALL, STAFFORDSHIRE;
and 69, UPPER THAMES STREET, LONDON,
Original Manufacturers of Wrought-Iron Gas Tubes and Holders of the present Patents; Inventors and First Makers of LAP-WELDED FLUES for Steam Boilers.
J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water, and the largest Orders may be executed in a few days.
Gun Metal, and all other kinds of Cocks, Stocks, Dies, and Taps, Galvanised Tubes, &c.
N.B. All Goods thoroughly Tested before sent out, and Warranted.

JOHN BENT & SON,
WET AND DRY GAS-METER
AND
STREET-LAMP
MANUFACTURERS,
BELL BARN ROAD, BIRMINGHAM.
ESTABLISHED 1830.
All materials found for the alteration of Public Lamps for lighting with the Rod. Regulators with Lava Burners.

BLAYDON BURN AND LOW BENWELL FIRE CLAY RETORT AND FIRE-BRICK WORKS, NEAR NEWCASTLE-ON-TYNE.
WILLIAM COCHRAN CARR begs most respectfully to thank the Metropolitan, Provincial, and Continental Gas Companies for their patronage for several years past, and to intimate that he has rebuilt and enlarged his extensive premises for the Manufacture of CLAY RETORTS; and that he is now prepared to execute the largest orders with punctuality and despatch. Orders for FIRE-CLAY RETORTS, of all shapes and sizes, FIRE-BRICKS, and all other Articles in Fire-Clay, executed on the shortest notice, and on the most reasonable terms.
London Agents: JAMES LAWRIE & CO., 63, OLD BROAD STREET, CITY, LONDON.

THE "LOTHIAN" CANNEL COALS.
These Cannels are extensively used in the Gas-Works of Edinburgh, where the illuminating power of the gas is the highest in Britain.
The yield per ton is 12,573 cubic feet; illuminating power 33·8 standard candles; coke per ton 1046 lbs.
Ports of Shipment, in the Firth of Forth.

AYRSHIRE CANNEL COALS.
These Cannels are used in Glasgow, Greenock, Paisley, and other Gas-Works on the West Coast of Scotland.
The yield per ton is 10,650 cubic feet; illuminating power 24 standard candles; coke per ton 1216 lbs.
Ports of Shipment, in the Firth of Clyde.
For prices and other information, apply to Mr. JOHN ROMANS, C.E., 53, Frederick Street, EDINBURGH.

NOTICE.
LESMAHAGO GAS OR CANNEL COAL.
JAMES FERGUSON & CO., Auchinheath Colliery, Lesmahago, and the NITSHILL & LESMAHAGO COAL COMPANY, AUCHINHEATH AND SOUTHFIELD COLLIERIES, LESMAHAGO, sole Proprietors and Producers of the above celebrated GAS COAL, beg to intimate to Gas Companies and other consumers that, having reason to suspect that Cannel or other Coal of very inferior quality, both as regards the quantity and illuminating power of the Gas, has frequently been mixed with and sold under the name of "Lesmahago," they have now appointed Messrs. JAMES LAWRIE & Co., of 63, Old Broad Street, LONDON, E.C., sole agents for England; and Messrs. LE COUR & WATSON, of LEITH, sole agents for foreign markets; and, in order to prevent a recurrence of the frauds named, they request that all purchasers will send their orders through the above-named firms. Orders for other than the above-named markets may be forwarded direct to either of the Proprietors.
The Proprietors will, in future, use their own forms of bills of lading, and also issue certificates of origin, signed, as the case may be, either by JAMES FERGUSON & Co., or by the NITSHILL & LESMAHAGO COAL COMPANY; and they request all consumers purchasing Lesmahago Coal to demand such a certificate for each cargo, and to observe that it corresponds with the bill of lading.
Auchinheath, Lesmahago, March, 1868.

GEORGE GLOVER & CO.
Patentees of the Standard Gasometers for the Government,
TWO MEDALS, HAVE OBTAINED THE SILVER MEDAL,

HIGHEST PRIZE FOR

LONDON, 1862. PARIS, 1867.
IMPROVED DRY GAS-METERS AND GASOMETERS,
AT THE
PARIS EXHIBITION.
RANELAGH WORKS, RANELAGH ROAD, PIMLICO, LONDON, S.W.;
AND 127, BOULEVARD DE MAGENTA, PARIS.

JOURNAL OF GAS LIGHTING NEWSPAPER HALF-PENCE

IMPROVED GAS-ENGINES.

KINDER AND KINSEY'S PATENT.

THE GAS-ENGINE COMPANY, LIMITED,

Having secured the above Patent, which embodies considerable and important improvements upon the Lenoir Engine, are now prepared to execute orders for Engines of one, two, and three horse power made in accordance therewith.

These Engines are worked with a very small quantity of water. They can be fixed for a nominal sum, and their working power will be guaranteed for twelve months.

It has been proved that the most economical results are obtained by the use of electricity, and that with ordinary care and cleanliness it can be fully relied on.

PRICES:

One-Horse Power, £85; Two-Horse Power, £110; Three-Horse Power, £135.

DELIVERED FREE TO ANY RAILWAY STATION IN ENGLAND OR SCOTLAND.

Further particulars on application to the SECRETARY, 92, CANNON STREET, LONDON.

1862.

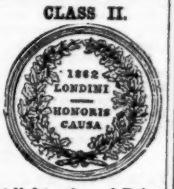
PATENT ANTIMONY PAINT.

MADE ONLY BY

GEORGE HALLETT & CO.,

296, ROTHERHITHE, LONDON, S.E.

CLASS II.



This Paint having been in general use over six years (especially in some of the principal Gas-Works), and proved itself the best light-coloured Paint produced for resisting the influence of vitiated atmospheres, it is important that its qualities should be more widely known.

It is not discoloured like white lead in a sulphuretted atmosphere, nor washed off like white zinc; and its light colour reflecting heat, produces much less expansion of gas in holders painted with it than with dark colours, besides rendering them much more sightly. Its specific gravity is so much below white lead that the same weight will cover one-third more surface, while it is equal in body; and its price being about the same (28s. per cwt.), it is actually one-third cheaper. From experience, its manufacture is greatly improved, and it is quite suitable for all purposes in which white lead is employed.

Reference is kindly permitted by the Engineers of the City of London, Commercial, London, and Surrey Consumers Gas Companies, who pronounce it the best Paint known for their purposes.

N.B.—Antimony Paint, COVERING SO MUCH MORE WORK, costs under 20s. per cwt., as compared with White Lead at 28s. per cwt.; a similar economy arises from its use in Steam and Gas Joints, for which purpose it is superior to White Lead.

Established

1795.

JOSEPH CLIFF & SON,

THE ORIGINAL

WORTLEY FIRE-BRICK WORKS.

NEAR LEEDS,

MANUFACTURERS OF ALL DESCRIPTIONS OF

FIRE GOODS, and SALT-GLAZED DRAIN-PIPES.

LONDON AGENT:

MARCUS BOURNE NEWTON,

Wharf No. 4, inside Great Northern Goods Station, King's Cross,

Where is always kept a Stock of Retorts, Fire-Bricks, Terra Cotta Ware, and Drain-Pipes.

N. DEFRIES,

INVENTOR OF THE FIRST SUCCESSFUL

DRY GAS-METER.

210,000 IN USE.

WORKS:

DIANA PLACE, EUSTON ROAD, LONDON.

D. GRANT & CO.,
GAS-METER MANUFACTURERS.

STATION-METERS ANY SIZE.
PHOTOMETERS, EXPERIMENTAL METERS,
PRESSURE-GAUGES, &c.
Price List on application.
GAS-METER WORKS, CROSSCAUSEWAY,
EDINBURGH.

HARRIS and PEARSON,
PROPRIETORS OF
BEST GLASS-HOUSE POT AND CRUCIBLE CLAY
MANUFACTURERS OF
FIRE BRICKS, GAS RETORTS, &C
AMBLECOTE FIRE CLAY AND BRICK WORKS,
STOURBRIDGE.
Late in the occupation of I. and W. Xing. Originally J. Pidcock, Esq.
NB A quantity of best Clay Retorts in stock, viz.—Circulars, 14 inches, 15 inches. 16 inches.
D's, 16×12, 15×14, 20×16, 16×18.

INTERNATIONAL EXHIBITION,
1862. CLASS X.
PRIZE MEDAL
For excellence of Fire-Clay Gas Retorts, and "HONOURABLE MENTION" for good quality of Fire-Bricks.
WILLIAM STEPHENSON & SONS,
THROCKLEY,
NEWCASTLE-ON-TYNE.

THOMAS CARR & SON,
MANUFACTURERS OF
FIRE-BRICKS, LUMPS, TILES, RETORTS,
&c. &c.
SCOTSWOOD FIRE-BRICK WORKS,
NEAR
BLAYDON-ON-TYNE.

JAMES NEWTON & SONS,
(Established 1820,)
FIRE-BRICK AND TILE MERCHANTS,
Wholesale and for Exportation,
FALCON DOCK, 78 AND 79, BANKSIDE,
SOUTHWARK, LONDON, S.E.,
DEPÔT for STOURBRIDGE AND NEWCASTLE FIRE-BRICKS, LUMPS, TILES, and FIRE-CLAY, and every Article suitable for
GAS AND WATER WORKS.

WOOD SIEVES for GAS PURIFIERS.

THE BEST AND CHEAPEST
CAN BE PURCHASED FROM
T. COULTHARD, WEST STRAND, PRESTON,
LANCASHIRE.

HANCOCK'S INDIA-RUBBER GAS-TUBING.
All sizes, from ⅛ in. to 4 in. diameter and upwards.
Also,
HORSE SINGEING APPARATUS, best make, with GAS-BURNERS, COMBS, and INDIA-RUBBER TUBING, all complete.
INDIA-RUBBER BAGS for GAS-MAINS.
WASHERS for GAS and STEAM JOINTS.
VALVES (pure solid Rubber) for STEAM-ENGINES.
PACKING (Elastic) for STEAM-ENGINES.
FLANGE TUBING, for excluding Draughts and Dust through WINDOWS, DOORS, and GLASS CASES.

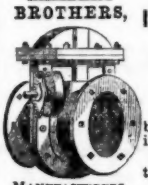
Section.

Illustrated Price Lists on application.
JAMES LYNE HANCOCK,
Vulcanized India-Rubber Works,
GOSWELL MEWS, AND 266, GOSWELL ROAD
LONDON, E.C.

Established 1811.
READY & SON,
BILSTON STREET BRASS FOUNDRY,
WOLVERHAMPTON,
MANUFACTURERS OF
SUN BURNERS, GAS CHANDELIERS,
HALL LANTERNS, BRACKETS, PENDANTS,
And every Description of
GAS-FITTINGS,
Including
MEDIÆVAL FITTINGS for CHURCHES, &c.
Large Pattern Books complete, with Book of Prices, 7s. 6d.

Trade Mark. THE MEDAL FOR 1862.
THE ONLY PRIZE MEDAL AWARDED FOR TUBES AND FITTINGS.
CROWN TUBE-WORKS,
WEDNESBURY STAFFORDSHIRE.
WAREHOUSE—81, UPPER GROUND ST., LONDON.
JAMES RUSSELL & SONS,
Patentees and First Makers of Wrought-Iron Tubes.

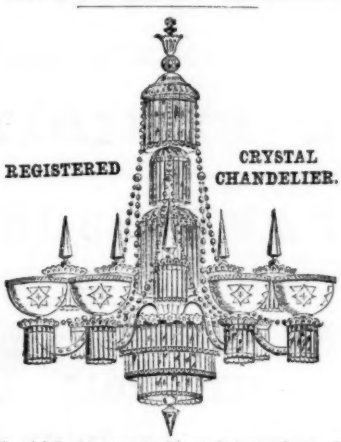
LAMBERT BROTHERS,
REDUCED PRICES OF
IMPROVED GAS-VALVES
WITH WROUGHT-IRON PINIONS.



2, 2½, and 3 in.... 12s. per in.
4 in. to 6 in..... 11s. „
7 in. to 12 in..... 10s. „

These Valves are all proved on both sides to 30 lb. on the square inch before leaving the works.
Valves made with outside racks to order.
Also Water-Valves, with gun-metal faces and gun-metal screws.
MANUFACTURERS,
WALSALL.

TO GAS COMPANIES AND THE TRADE.
J. DEFRIES & SONS,
MANUFACTURERS OF
CRYSTAL, BRONZED, & ORMOLU
CHANDELIERS;
IMPROVED CRYSTAL STAR & SUN LIGHTS;
VESTIBULES,
IRON BARREL, COMPOSITION TUBING,
AND
GAS-FITTINGS OF EVERY DESCRIPTION.
WORKS:
LONDON, BIRMINGHAM, AND PARIS.


REGISTERED CRYSTAL CHANDELIER.

Special Designs prepared in perfect accordance with architectural arrangements. Estimates furnished for the Lighting and Fitting up of Theatres, Music-Halls, and Public or Private Buildings with Gas.
GAS MOONS OF THE NEWEST DESIGNS.
The Patent Gas-Regulator & Purifier reduced to 6s. 6d. per Dozen.
Pattern Books of Gas-Fittings, Crystal and Ormolu Chandeliers for 1868, are now complete.
CITY SHOW-ROOMS & MANUFACTORY,
147, HOUNDSDITCH.

THOMAS EDINGTON & SONS,
PHŒNIX IRON-WORKS,
GLASGOW,
Manufacturers of all kinds of
GAS AND WATER PIPES,
Branches, Bends, Water-Traps, Tank-Plates, Valves, and general Castings. Also
RAILWAY CHAIRS & SLEEPERS,
AND
GRIFFIN'S PATENT PERMANENT WAY.
London Office, 63, Old Broad Street.

BELGIAN CLAY RETORTS.
J. SUGG and CO., late ALBERT KELLER, Ghent.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Messrs. Sugg, of Ghent, beg to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by them. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.
Communications, addressed to J. SUGG and Co., GHENT, will receive immediate attention.

W. J. HOLLANDS,
IRON MERCHANT,
31, BANKSIDE, LONDON, S.E.
SOCKET, FLANGE, HOT-WATER PIPES, AND ALL CONNEXIONS; RETORTS, HYDRAULIC MAIN, LAMP-COLUMNS, &c.; AND EVERY DESCRIPTION OF CASTINGS AND WROUGHT-IRON-WORK FOR GAS AND WATER-WORKS, STEAM, AND GENERAL PURPOSES.
N.B.—All goods kept in stock, and supplied at wholesale prices. Estimates given, and orders by post punctually attended to the same day.

JAMES OAKES and CO.,
ALFRETON IRON WORKS, DERBYSHIRE,
AND
WENLOCK IRON WHARF, 20, WHARF ROAD,
CITY ROAD, LONDON,
Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water-Works, including Iron Retorts, Socket and Flange Pipes, Bends, Branches, and Syphons of all sizes, Lamp Columns, &c., &c.
N.B.—Orders for Cast-iron Tanks, Girders, Columns, Cylinders, and all irregular castings, will have immediate attention.
CHARLES HORSLEY, Agent.

JAMES M'KELVIE,
CANNEL COAL MERCHANT,
HAYMARKET,
EDINBURGH.
Established 1840.

WALTER MABON & CO.,
Engineers,
ARDWICK IRON-WORKS,
FAIRFIELD STREET, MANCHESTER,
MANUFACTURERS OF
IRON TANKS, GASHOLDERS,
GAS APPARATUS,
PIPES, VALVES, IRON ROOFS,
WROUGHT AND CAST-IRON GIRDER
DESIGNS, SPECIFICATIONS, & ESTIMATES FURNISHED.

GAS & WATER PIPES,
GIRDERS, COLUMNS, RETORTS, AND GENERAL CASTINGS,
quoted for on application to
GEO. BOWER,
MILTON IRON-WORKS,
WEST HARTLEPOOL.
N.B.—A large stock of 2 to 8 in. pipes usually ready for immediate delivery.

D. BRUCE PEEBLES,
Gas-Meter Manufacturer,
FOUNTAINBRIDGE
EDINBURGH.

STEARS BROTHERS & CO.,
Gas Engineers and Contractors,
16, PARLIAMENT STREET, HULL,
AND
11, COLEMAN STREET, LONDON, E.C.
Contractors for Gas-Works of any size at home or abroad. Copy of testimonials from numerous Gas Companies can be had on application.

J. T. B. PORTER & CO.,
GAS ENGINEERS,
MANUFACTURERS AND CONTRACTORS FOR GAS-WORKS
Of any extent at Home and Abroad,
GOWTS BRIDGE WORKS, LINCOLN,
AND
JOHN STREET, ADELPHI, LONDON, W.C.

ALFRED PENNY, Gas and CONSULTING ENGINEER,
WENLOCK IRON WORKS,
21, WHARF ROAD, CITY ROAD, LONDON.
Mr. PENNY having had a large experience in the construction, alteration, and management of Gas-Works, begs to inform the Directors of Gas Companies that he may be consulted on all matters appertaining thereto. He also manufactures Gasholders, Purifiers, and all the various apparatus used in Gas-Works, and keeps in stock Retorts and Mouthpieces, Socket-Pipes, Bends, Branches, T-pieces, &c. &c.
Plans, Specifications, and Estimates prepared.

ADDISON POTTER,
WILLINGTON QUAY,
NEAR NEWCASTLE-UPON-TYNE,
Manufacturer of Clay Retorts, Fire-Bricks, and every description of Fire-Clay Goods.

THE

UNIVERSAL EXHIBITION OF PARIS,

1867.

SILVER MEDAL.

THOMAS GLOVER,

DRY GAS-METER MANUFACTURER,

CLERKENWELL GREEN, LONDON,

HAS BEEN AWARDED THE HIGHEST PRIZE FOR

DRY GAS-METERS,

BY THE IMPERIAL COMMISSIONERS FOR THE

UNIVERSAL EXHIBITION, 1867.

WILLIAM PARKINSON AND CO.

(SUCCESSORS TO SAMUEL CROSLEY),

PATENT WET AND DRY GAS-METER MANUFACTURERS, &c.

COTTAGE LANE, CITY ROAD, LONDON, E.C.

Established 1816.

PATENT IMPROVED WET METER.

W. P. and Co. invite especial attention to this Meter, which entirely overcomes the difficulty to which ordinary Wet Meters are subjected, owing to the short range of the Float, which is necessary, in order to meet the requirements of the Sale of Gas Act.

"It is well known that n Meters constructed so that the valve will close when the water is drawn off to such a point as to render them 3 per cent. slow the lights are liable to be extinguished by the closing of the valve by a sudden increase of pressure. To meet this difficulty, Mr. Pinchbeck has invented an ingenious and simple arrangement by which the action is reversed, and any such increase of pressure, in his Meter, raises the value instead of depressing it. The fact of the improvement having been adopted by Messrs. W. Parkinson and Co. is a sufficient guarantee that it practically and effectually remedies the inconvenience it is designed to meet."—JOURNAL OF GAS LIGHTING.

PATENT IMPROVED DRY METER,

Which W. P. and Co. pledge themselves to manufacture with the same quality of materials and workmanship as in their Wet Meter, thereby giving Gas Companies and others the advantage of procuring a first-rate Dry as well as a Wet Meter, which, hitherto, they have been unable to do.

STATION-METERS AND GOVERNORS.

Which can be seen at all the London Gas-Works. Also Liverpool, Manchester, Sheffield, Nottingham, Belfast, Glasgow, Birmingham, Dublin, Bristol, Leeds, Leicester, Brighton, Southampton, Sunderland, Wolverhampton, Bradford, Norwich, &c. &c.

TEST GASHOLDERS, EXPERIMENTAL METERS, EXHAUSTER REGULATORS,

MINUTE CLOCKS, PRESSURE GAUGES, PHOTOMETERS, PRESSURE REGISTERS, &c.

CONTENTS.

	PAGE
Notes upon Passing Events:—	
The Government Telegraph Bill	453
The Rival Architects for the New Palace of Justice	453
Railway Amalgamation	453
The Debate on the Rights of Married Women to Hold Property	454
The Proposed Academy of Music at South Kensington	454
Mr. J. S. Mill's Municipal Government Bill	454
Mr. Hope Scott on the Constitution of Municipal and Local Boards	455
The Metropolitan Board and Metropolitan Improvements	455
Circular to Gas Companies:—	
The City of London and the Chartered Gas Bills	455
Costs of Metropolitan Gas Agitation from 1857 to 1867	456
The Gas Question at Cambridge	456
Proposed Increase in the Charge for Public Lights by the New Gas Company at Weymouth	456
Sandell's Gas "Revenue Expenditure Book"	455
Communicated Article:—	
On the Estimation of Sulphur in Coal Gas, by A. G. Anderson, Esq.	456
Register of New Patents:—	
Somerville and Eladon—Purification of Gas	457
Galloway and Plant—Welded Tubes	457
Lake, W. R.—Illuminating Gas	457
Thomas, T. C.—Water-Closet Fittings	458
Archer, W.—Rotary Engines and Rotary Pumps	458
Thompson, Nathan—Connecting-Pipes or Tubes	458
Applications for Letters Patent	458
Grants of Provisional Protection	458
Notices to Proceed	459
Patents which have become Void	459
Parliamentary Intelligence:—	
Progress of Bills in House of Lords	459
Progress of Bills in House of Commons	459
Water Supply Regulation Bill	460
Miscellaneous News:—	
Meeting of the Malta and Mediterranean Gas Company	461
Gas at St. Ives	462
Share List of Metropolitan Gas Companies	462
Price Current	462
SUPPLEMENT.	
British Association of Gas Managers	473
Parliamentary Intelligence:—	
House of Commons Committee—Dundee Gas Bills	490
Miscellaneous News:—	
Metropolis Gas Supply—Metropolitan Board of Works	500
The Water Supply Bill—Deputation to the Home Office	500
Dr. Whitmore's Report on the Quality of the Gas supplied in St. Marylebone, in May, 1868	500
Obituary—Mr. W. P. Green	500
Stockton Corporation Gas-Works	500
Retirement of Mr. Joseph Braddock	500

TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion, must be authenticated by the name and address of the writer; not necessarily for publication, but as a guarantee of good faith.

A. Y.—*A "dry scrubber" is a misnomer for the vessel you describe, as a liquid in some form or other is essential to the operation termed "scrubbing." A dry scrubber can only be an extension of the condensing apparatus, and the frequency of its requiring to be emptied will depend upon the efficiency or otherwise of the condenser. The pressure at the inlet is the best test, and if it exceeds the pressure at the outlet by more than two or three tenths of an inch, the vessel should be emptied and refilled.*

NOTICES.

The subscription to the JOURNAL is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders should be made payable at the Money-Order Office, London, to William B. King, 11, Bolt Court, Fleet Street, by whom the business department of the JOURNAL is conducted.

The next number will be published on Tuesday, July 7, and the subsequent numbers on each successive alternate Tuesday.

Stamped copies, when forwarded by post, must be folded so as to expose the stamp; they are otherwise liable to the full postage charge for letters.

This JOURNAL has been duly registered at the General Post-Office for transmission abroad.

All communications for the Editor to be addressed, "No. 42, Parliament Street, Westminster;" and all remittances for subscriptions or orders for advertisements to the Publisher, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, JUNE 23, 1868.

Notes upon Passing Events.

THE Telegraph Bill is lost for this session, for it will never survive the select committee. It was too good a thing for the coming to leave to the falling Minister. To transfer the management of the telegraphs to the Post-Office means, first, patronage; and next, credit for a change that will be only second in its advantages to the penny postage. It is a change that does not press, and that will be improved, or rather matured, by a little more time and discussion. As far as regards the shareholders in the various telegraph companies, they need not grumble—they are sure to receive a good price for their stock. The question of compensation is a large one, but ought to be treated in a liberal spirit. The high officials are sure to make good terms for themselves. It is to be hoped that there will be no attempt to deal shabbily with the numerous *employés* who have no interest, beyond their faithful services, with chairman and directors. Above all, we trust that there will be no attempt to squeeze out people quite fit for their humble posts, by a vicious application of the principle of competition. Competition may be a very useful machine for checking the abuse of patronage and relieving Ministers from the pressure of members of Parliament. Competitive examinations of candidates for the Civil Service ensure some elementary knowledge, some powers of memory, a decent handwriting, and one or two other of the tools of education, and so far is better than the hap-hazard pitchforking of the sons of pressing or needy constituents into public departments; but it becomes both folly and cruelty when applied to a grown man whose previous occupations have tested his practical fitness for any berth. For instance, it was a mockery to call upon sergeants in the army, who had been acting as clerks for years in their regiments, to pass an examination in general acquirements suitable to boys before being admitted into the rank of copying clerks at our public offices. There is another point that ought to be watched by genuine reformers—viz., that the telegraph system in the hands of Government is not turned into a taxing machine. The efficiency of the Post-Office suffers severely from attempts to extract an increasing revenue out of it. Any surplus income should be strictly applied to increasing the accommodation and reducing the charges, after the original debt for the purchase is paid off. The abolition of the post-horse and hired horse taxes would be another boon in connexion with the extension of the telegraph in rural districts. Let every farmer and innkeeper be allowed to keep horses and vehicles for occasional, as distinguished from daily, hiring, and it would become easier to forward telegrams, as well as less expensive than it is at present.

The Government have been attempting the tough task of making public wants square with the claims of rival architects. As we have before observed, no one architect ever produced a perfect public building. Whoever has to examine the plans of a number of able men sent in competition always wishes that it was possible to take the best ideas of several, and combine them in one harmonious whole. This, on a small scale, the commissioners on the Palace of Justice tried to do. They found that Mr. Edward Barry's designs were, as regarded the interior arrangement in light, ventilation, and easy communication, superior to those of all his competitors. On the other hand, they preferred the external design of Mr. Street. But legal authorities decided that the parties empowered to select one design could not select two and combine them, so the whole question was opened afresh. The Government now propose to give the execution of the Palace of Justice to Mr. Street, who was not successful in his interior, and to give the New National Gallery to Mr. Edward Barry, as a sop for losing the Palace of Justice. To this decision, somewhat after the manner of Cyrus's judgment on the two coats (see Sandford and Merton's report) Mr. Barry demurs. Mr. Street and Mr. Barry are both eminent men, and if they may use each other's ideas are sure to produce something good. We allude to this example because it illustrates the small importance that is usually attached to convenience in architecture. A picturesque sky-line and an interior drawn by some celebrated scene painter will generally win in competition. Unpoetical people would have thought that the convenient internal arrangements of a collection of law courts were the first points to be considered, and the elevation next. This, it seems, is not the opinion of Lord John Manners.

Mr. Watkin is having a hard time of it, especially as for many years he has been accustomed to have his own way. He is going to work three lines, lately hostile, harmoniously, and there the gain is obvious. He will no longer run trains to vex or compete with any of the three; he will arrange the time-tables to suit the traffic. The saving there will be large. But that is not enough; he seeks power to remodel the fares.

If he would state what are the maximum fares he proposes to charge he might probably come to a compromise; but as he has laid down as a principle that he means to earn interest on all the magnificent works which in wild competition have been built between the Thames, Clapham Common, and Sydenham, the Lords will scarcely trust the travelling commons in his hands. We should have thought that the advantages of amalgamation were so great that Mr. Watkin might have left the fare question alone, and so spared himself the stings of an endless cloud of gnats, wasps, and hornets. Of course, no Parliament will venture to legislate on any such principle as "making the good pay for the bad." If Mr. Watkin will state the maximum fares he means to charge suburban travellers, and especially ticket-holders, there may be grounds for a compromise. As to the claim to fix any fares the companies please for express trains, that is perfectly reasonable, provided the companies bind themselves to run not less than a certain number of trains at a certain speed every working day. Without that provision, we might be between express trains at fourpence a mile and forty miles an hour and ordinary trains at twopence a mile and ten miles an hour—a system that would pay the companies well and drive the British public raving mad. The Belgian, or even the French system, on our lines would, in a month, breed an insurrection.

A very pretty debate arose the other day in the House of Commons on a Bill for extending the rights of women to property. The Bill proposed to give to the wives of the lower, middle, and working classes, the privileges which women of fortune, unless victimized by fortune-hunters, obtain by marriage settlements. This is a claim the result of the changes going on in the state of society. As a rule, in England, the ceremony of marriage being easy to complete, all working men are married. The labourer who was reproached by the parson's wife for marrying again a fortnight after his first wife's death, answered and demolished the sentimental lady with, "Who was to look after the childer, and wash my "shirts?" Concubinage, so common where marriage is made difficult by law, is almost unknown, except amongst costermongers. But the modern working man's wife does not only wash her husband's shirts and nurse the children. In the factory districts—cotton, linen, woollen—she earns a very respectable income. The whole course of modern life makes women of the humbler classes more important as money earners than their grandmothers. Then women are not only naturally more sober than men, but more given to saving. How often are those who meddle with

The short and simple annals of the poor

bound to hear heart-rending tales of little savings accumulated by the hard labour and severe abstinence of the wife dissipated by a brutal or drunken husband. If a man deserts his wife, by a comparatively recent law she may obtain protection for property earned after separation; but there are numerous instances in which the spirit of the law will not apply. There is, also, another aspect of the question, that has not hitherto been discussed. If you give women rights of property you also impose on them responsibility. The curse of many a decent mechanic is the tally-shop system, under which coaxing pedlars persuade weak women to buy on credit at credit prices, and pay by instalments for all sorts of trumpery. If the wife was to be the responsible person, the vulture-like tally-man would lose one inducement for pushing the credit that so often ends in ruin to the wages earner. The subject is scarcely ripe for settlement, but it is much more worth discussion than the question of whether a few strong-minded maids and widows should have votes for members of Parliament.

The irrepressible Mr. Cole, as the *Saturday Review* calls him, has gained a step in advance towards creating a rival to Exeter Hall and the Crystal Palace, with its Handel Festivals, at South Kensington. The Royal Academy of Music has been refused its annual subsidy of £500, and will shortly expire for want of means without exciting any severe grief, unless it be on the part of the professors who manage it. It would be difficult to show that the Academy had ever done anything for the musical taste of the country. It has had no connexion with the various choral societies which have popularized music to the present generation. But it would be still more difficult to find any good reason for supporting, at public expense, an academy of music at South Kensington. If there were a proposal for encouraging the study of the several sciences that do not pay; for providing pensions and professorships, colleges, or laboratories for eminent philosophers; for placing funds at the disposal of men of the class represented by Babbage or Owen or the late Edward Ferguson, we could understand it. Pure science, unconnected with commerce, meets with very niggardly treatment in this country. But why in the name of common sense are we to be coaxed into providing an establishment for training singers and performers on all manner of instruments? We offer to successful singers and players the highest prizes in the world, and in an unlimited number. There can be but one Lord Chancellor and one Attorney and Solicitor General. The number of judges in the other courts is limited, and they are all bound to live and work in England; but any man or woman who can sing in a superior manner, or play well enough to command the applause of a concert-room, has all Europe, America, and Australia for harvest-fields. Patrons are found easily at every stage of youth's career, and those who fail to obtain first prizes can live more comfortably than most members of learned professions, as teachers of music. But Mr. Cole wants a few thousands a year from Parliament to raise an extra crop of singers, pianists, fiddlers, harpists, trombonists, &c., because he is building a great hall of science to which science will not come, or if it does, will find the place too big for any scientific operation. Bull-fights are not permitted, otherwise a more appropriate use might be found for the hall of "Omniscience." As a place for the performance of oratorios it may do. If, then, an academy can be raised at the expense of the nation next door, with pupils singing gratis and professors with fixed salaries, a cheap and agreeable addition may be made to the Horticultural Gardens; not that we disparage South Kensington as long as it keeps clear of musical and dancing academies. The portrait gallery now open is admirably displayed, and is a valuable illustration of English history. It proves, however, very little for academies of art. We seek in vain for portrait painters to equal Reynolds, Gainsborough, and others of the pre-academic age.

Mr. J. Stuart Mill has just been experiencing how ungrateful is the task of attempting to reform an acknowledged abuse. Every one who discusses the subject in or out of Parliament admits that the municipal government of the metropolis is not satisfactory. There is a need of harmony of action amongst the various conflicting parochial powers. The remedy would seem to lie in a diminution of the number and an increase of the power of the various bodies which now, as District Boards of Works, are supposed to repair and clean streets, and carry into effect all local and general sanitary regulations. When the *Daily Telegraph* talks of the metropolis being worse cleansed, worse sewered, worse supplied with water, and made to pay dearer for gas than any great city of Europe, it merely utters the sort of wild bombast which is the character of that very amusing and most inaccurate newspaper. But, still, although we have gas much cheaper, water more generally and cheaply distributed, and a much more efficient system of getting rid of sewage than Paris, this does not amount to a satisfactory state of local government. Mr. Mill's proposal was to give to every parliamentary division of London a complete municipal government—a mayor, aldermen, and common councilmen to Finsbury and the Tower Hamlets, Marylebone, Westminster, Chelsea, and so on. His principle seems right; the difficulty lies in the application of a plan that would disturb so many local interests. Mr. Mill said that "it was essential "to the success of a popular representative system that it "should not be conducted on too small a scale; *a limited choice* "*of officials* rendered it difficult to secure an efficient administra- "tion, and there was considerable danger that the best class of "men could not be obtained for the work." It would appear, therefore, that Mr. Mill's idea is a parliament of local government for discussion, and superior paid officers as administrators. But this idea is repugnant to the fixed notions of existing common councilmen and vestrymen, who have the greatest jealousy of their own officials however distinguished for professional ability. The small tradesman likes to remind a professional man that he is the "servant" of the Board. Discussion will no doubt eventually produce a reform; at present it has only excited a resisting agitation by the vested interests. Mr. Hope Scott has raised up a teapot—Britannia metal—sort of storm in Birmingham, by hinting that small trademen, and he might have added obscure attorneys, have more to do with municipal affairs in local corporations than the more wealthy and educated of the community. About the fact there is little doubt; and it must be submitted to, for we must be satisfied with the services of the class of people who think it an honour

or a profit to be aldermen or common councilmen. The only possible remedy is to be found in a more enlightened middle-class education.

In Birmingham a whole column of a paper is filled with the correspondence between two attorneys of insignificant professional position, members of the Town Council. It seems that Mr. Hope Scott, in addressing a committee on a private Bill in which Birmingham is interested, insinuated that municipal councils were often composed of small tradesmen, and he might have added, of attorneys of third-rate position. On this an alderman-attorney addressed a savage letter to the other attorney, a common councilman, reproaching him for not having checked the impertinence of the counsel he had instructed. The attorney attacked professed to be equally indignant, but piteously and truly declared that Mr. Hope Scott was not the man to take instructions on his line of defence from any attorney, least of all to be checked in a speech. But the alderman's rival was not willing to lose his point, and so the column was filled. The funny thing is that this pot and kettle are so transparently making good Mr. Scott's suggestion in their attempts to make capital for the next municipal election. With the example of the United States before us, we do not expect to see the time when small attorneys and the oracles of smoking-rooms will not be prominent in assemblies like vestries and common councils.

The Metropolitan Board have, apparently, the good sense to act as if their existence depended on useful work. A majority has decided not to be hampered by foolish jealousy of the Corporation of London. The last case was that of Ludgate Hill, where a committee recommended that the Board should contribute to the expenses incurred by the Commissioners of Sewers in setting back a house on Ludgate Hill, with the view eventually of completely widening that important thoroughfare. The usual arguments were urged in favour of delay—in favour of doing nothing—and against allowing the City of London to spend the money of the Board; but, fortunately, good sense prevailed, and by a majority of nearly two to one the recommendation of the committee was accepted and confirmed. In the course of the discussion it was mentioned that the City had purchased Southwark Bridge. Such has been the effect of competition between the rival local powers. When the Palace of Justice plans are settled and Holborn Viaduct opened, perhaps a new movement may clear away Temple Bar, demolish Holywell Street, and make a clean sweep of the rails and the yard round St. Paul's.

Circular to Gas Companies.

The City of London Gas Bill and the Bill of the Chartered Company passed through the committee of the House of Lords on Tuesday last, and now only await a third reading and the Royal Assent to become law. The petition against the former of those Bills from the ten other metropolis gas companies was of no avail, for, as we predicted, they did not succeed in obtaining a *locus standi*. Mr. Davison, one of the counsel in support of the Bill, argued at great length against the right of the companies to oppose it, and in doing so he referred to the whole course of metropolitan gas legislation before and since the passing of the Act of 1860 down to the proceedings before Mr. Cardwell's two committees, quoting largely from the reports of the committees and from the petitions, and contending that, as there was nothing in the City of London Gas Bill which directly affected the interests of the other London gas companies, they had no ground for opposition. The petitioners against the Bill alleged that if the Metropolitan Board became the purchasers of the Chartered Company's works outside the City, as their Bill authorized, with power to supply gas in bulk, the Imperial Company "may be driven to buy its gas of the Metropolitan Board, "and it would be impossible for the Imperial or any other "company to carry on their works in competition with a "public body such as the Metropolitan Board of Works." Such a case, it was contended, could not arise out of the City of London Gas Bill, the clauses of which referred exclusively to the supply of gas within the City. It was, however, admitted that if the Bill were to pass it would be, to a great extent, a precedent for interference with the Act of 1860, in the spirit of the reports of Mr. Cardwell's and Sir John Trollope's committees. That admission was seized on by Mr. Denison, the counsel for the petitioners, as the foundation of their claim to be heard against the Bill. It having been admitted, he said, "that this is to be a model Bill for Parlia-"ment to act upon hereafter, when the Metropolitan Board "introduce their Bill next year, as in fact Mr. Cardwell "invited them to do, how can my learned friend, the utterer "of those words, say that we are not to be allowed to say a "word against the establishment of that principle?" In reply to the argument that the Bill did not affect the companies outside the City, it was urged that when the Corporation became the proprietors of the City gas companies with the powers which the Bill conferred, they might—taking the City Gas Bill and the Chartered Company's Bill together—supply gas in bulk to the other companies. Mr. Denison, in the course of his speech, noticed several times very strongly the remarkable hostility shown by Mr. Cardwell to the metropolitan gas companies, and he pointedly observed, "It is per-"fectly plain to everybody that if this Bill is passed the "principle is settled;" and when Mr. Cardwell regrets, as he did over and over again both this year and last, that he had no Bill of the Metropolitan Board of Works before him for establishing a competition, or for enabling the Metropolitan Board of Works to buy up the outside companies, Mr. Cardwell in effect simply said this: "The moment the Metro-"politan Board of Works give me such a Bill, I shall take care "to pass it." In afterwards speaking of Mr. Cardwell as having been established by the House of Commons as "the "decider upon gas Bills in London," Mr. Denison alluded to what he called Mr. Cardwell's "strange declaration," that he ought not, and that Parliament ought not, to interfere with the bargain of 1860 directly, but that he was at liberty to do so indirectly, and "to avail himself of a proper weapon." After summing up other declarations of Mr. Cardwell inimical to the gas companies, and alluding to his rejection of the Imperial Company's Bill because they would not agree to the terms he dictated, Mr. Denison remarked that, as the same chairman had stated over and over again that as soon as he had the opportunity he should pass such a Bill as the City of London Gas Bill, against all the companies outside the City, it was impossible that those companies should stand still and allow such a Bill to pass, which would as completely compromise them as if they had been included in it. The committee, of which Lord Romney was chairman, without calling on Mr. Davison to reply, decided that the petitioners had no *locus standi*. The promoters then applied for their costs, on the ground that the opposition to the Bill was frivolous and vexatious, as there was not a single provision in it that affected the companies outside the City in the slightest degree. On that point, however, the committee decided against the promoters, and the Bill was referred back to Lord Redesdale as unopposed.

The Chartered Company's Bill was petitioned against by the metropolitan gas companies on the north and on the south side of the Thames separately; there was a separate petition from the Imperial Company, and a petition from the vestry of Marylebone against clauses. Petitions had also been presented by the Corporation of London, the Metropolitan Board of Works, and the vestry of St. Pancras, but no one appeared to support them. The arguments adduced for and against the Bill were for the most part similar to those advanced in the case of the City of London Gas Bill. In reference to that part of the petition of the Imperial Company which alleged that, if the Bill passed, the Metropolitan Board would be enabled to purchase the works of the Chartered Company outside the City and to supply gas in competition with them, it was replied by Mr. Davison that the Metropolitan Board would be confined to the district now allotted to the Chartered Company. The committee decided that none of the gas companies, with the exception of the Imperial, the Commercial, and the Great Central, had any *locus standi*, the opposition of the Imperial Company being limited to a part of the preamble and to the clause giving power to the Metropolitan Board to purchase the Chartered Company's works, and that of the two other companies to the protection of their works. The opposition of the Marylebone Vestry was also confined to the same clause, into which they required to introduce the words "except as to the power of pur-"chase." The Metropolitan Board had, however, petitioned in support of that clause as it stood, and it was argued that the Marylebone Vestry, being only a limb of the body of the Metropolitan Board, ought not to be allowed to act against it, and the committee decided that they could not be

heard. A slight alteration was made in the preamble of the Bill, in accordance with the suggestion of the Imperial Company, so as to restrict more clearly to the Chartered Company's works the allegation that gas is at present manufactured at works "situated in the most densely populated parts of the "metropolis," and a clause was added for the protection of the works of the Commercial and of the Great Central Companies in the execution of the works authorized. With those amendments the Bill passed the committee, and was reported to the House. The London Corporation Bill—the "weapon" held over the heads of the City gas companies to keep them in subjection—will, of course, be withdrawn when Mr. Cardwell's committee reassembles on the 26th inst. Even Mr. Cardwell, it may be hoped, will be satisfied with having bound the City gas companies hand and foot, and compelled them to submit to conditions which it was declared, by the counsel who supported the Bill, might be ruinous, and were "an arbitrary "and unfair violation of the parliamentary bargain of 1860;" and that the other companies outside the City will be allowed to repose for a few years at least, to await the result of a fair trial of the new system which has been inaugurated by the City of London Gas Bill.

From a parliamentary return which was issued yesterday we find that the charges and expenses incurred by the Corporation of the City of London, the Metropolitan Board of Works, the thirteen metropolitan gas companies, and the Board of Trade, in relation to proceedings in Parliament since the districting arrangements of 1857, and in respect of proceedings in Parliament in 1866 and 1867, relating to the supply of gas to the City and metropolis generally, amount to the large sum of £104,901 2s., exclusive of the expenses of 1868. The items may be classified as follows:—

Corporation of the City of London	£13,482	18	5
Board of Trade.	3,682	0	5
Metropolitan Board of Works. .	6,462	5	5
Thirteen metropolitan gas companies	81,273	17	9
	£104,901	2	0

The very sensible remarks of Vice-Chancellor Malins on the gas disputes at Cambridge, and on the "monstrous "evil" of having two gas companies in that town, seem to have had the effect of exasperating instead of appeasing, and the contending parties are farther from coming to amicable terms than ever. The resolution of the Improvement Commissioners, at their meeting on the 2nd inst., to determine the contract with the Consumers Company, because they had failed to light the town with *gas* on the 1st of June, according to agreement, is to be contested by application to a court of equity, it being alleged that the company were purposely prevented from carrying the agreement into effect at the time specified, by the legal proceedings taken against them by the old company, and by negotiations promoted by the Town Council, which were protracted with the view of delaying their operations. Excited personal feelings have also arisen to widen the breach. Several of the oil lamps erected by the new company have been broken by supposed partizans of the old company, and the parties suspected of having done the damage have been charged with the offence before the magistrates, when much violent language was uttered on both sides. The question threatens to resolve itself into one of those senseless squabbles between Town and Gown which sometimes disgrace our universities, in consequence of the majority of the commissioners who support the old company being members of the university. There are some, however, on the other side; and at the meeting at which it was resolved, on the motion of the Rev. Dr. Atkinson, the Master of Clare College, that the contract with the new company should be terminated, it was proposed by the Rev. Dr. Geldart, the Master of Trinity Hall, and carried by a small majority, that any renewed contract with the old gas company for lighting the town should be determinable on three months notice, until the questions to be brought before the equity courts are decided. Nothing is now said about the renewal of the negotiations which the Vice-Chancellor so strongly recommended, and in the present state of heated feelings it could not be attempted with any prospect of success. It is to be hoped, however, that this condition of affairs, which is a disgrace to the town, will not long continue. It would be infinitely better for both parties that the money squandered in law proceedings should be applied to the purpose of compensation for unnecessary expenses already incurred, than that the losses should be increased by contentions that can produce no good to any, and cannot fail to be injurious to all—the consumers of gas included—and may be ruinous.

Gas agitators may learn a useful lesson from the present circumstances of the gas supply at Weymouth. Last year a consumers company was established in that town for the supply of cheap gas, from which, as it professed to be a consumers company, great public advantage was anticipated. The old works were purchased at a valuation from a private proprietor who had contracted to light the public lamps at the average price of £2 5s. per lamp, including lighting, extinguishing, cleaning, and repairs. The contract ends in October next, and at a recent meeting of the Town Council a letter was read from the new gas company, stating that the directors found that the cost of supplying gas to the public lamps, with the other expenses, including interest on capital, amounted to £4 15s. 6d. for each lamp per annum; but that, taking into consideration that the public were large consumers, the directors offered to continue the supply, at the termination of the existing contract, at £4 5s. per lamp. The ratepayers of Weymouth have thus the prospect of being charged nearly double for the public lamps for the pleasure of being supplied by a consumers company. The consideration of the offer was adjourned until returns are received from various large towns of the prices paid there for lighting the public lamps; though for what object such returns are sought does not appear.

A very useful form of keeping the accounts of small gas companies has been arranged by Mr. E. Sandell, of the firm of Messrs. Sandell and Madders, public accountants and auditors, which he calls a "Revenue Expenditure Book." It constitutes a kind of day-book wherein all moneys paid on goods received are entered in detail and subdivided under ten different heads, the totals being carried forward from page to page, so that the amount expended under each head may be readily ascertained. These forms of accounts are published in five-quire books, half bound, at a moderate price.

Communicated Article.

(All articles inserted under this head being copyright, the right of reproduction or translation is reserved.)

ON THE ESTIMATION OF SULPHUR IN COAL GAS.

By Alfred G. Anderson, Esq.,
Professor of Practical Chemistry in the Amalgamated Queen's and Sydenham Colleges (now Queen's College), Birmingham.

In this Journal of the 26th of May last (page 386, No. 407, vol. xvii.) I have remarked that the question of coal gas bisulphide of carbon estimation, by the investigations of several chemists, had at length been brought to a very mature condition of development. How far this state approaches that which will hereafter be shown as perfect for the purpose, or sufficient for the end in view, I hope to demonstrate in the course of these contributions. I am impressed notwithstanding with the belief that not a few gas engineers and chemists must continue in considerable uncertainty and doubt upon the true merits of this matter as it stands at present. Thus the publication of several valuable and interesting researches in these columns* has been from time to time accompanied with much argument, and the expression of widely different opinions, originating from the varied views of several experimenters. Now, it is, I think, obvious that, without a good deal of further elucidation and inquiry, anything approaching a clear definition of all the points at issue can hardly be brought within the comprehension even of those very conversant with them, and certainly they are still far removed from the interested, but not deeply initiated, inquirer.

I will take some examples in point, well serving to illustrate this kind of antagonism. I shall examine them more in detail hereafter, but at present I wish merely to allude to them in passing, because if some of the general principles there laid down be accepted, a retrograde movement and adoption of the sulphur determination method, with all its defects, of four or five years back would again have to be admitted as a process thoroughly efficient in use.

I think in the course of these papers I shall presently show that M. Ellissen, if not *the* first, was one of the earliest to prove the errors inseparable from the employment of the Leslie jet to consume the gas, so very frequently and improperly used in many sulphur determination analytical methods. I believe I need only request reference to the report published in this Journal of the 18th of October, 1864 (No. 313, vol. xiii.), and take the instance

* See No. 380, vol. xvi., page 354; No. 381, vol. xvi., page 397; No. 397, vol. xvii., page 9; No. 406, vol. xvii., page 333; and No. 407, vol. xvii., page 385.

in which he compares the results obtained by combustions made with the "single" jet with others in which the burner employed was of the "Leslie" construction. I have, after him, most conclusively proved, over and over again, that a far higher amount of sulphur can be obtained when we use the first-mentioned form instead of the second to burn the gas in the analysis. I have equally distinctly demonstrated, also, that a large proportion of sulphur, which otherwise would be securely preserved in the receiver, in the arrangement of apparatus to which M. Ellissen refers, on account of the rapidly rising heated current of air passing up the trumpet-shaped tube, thus rushes into the receiver with so much velocity that it is inevitably driven through it, and out by its upper aperture into the open air, and so escapes condensation. From this cause it follows that a considerable loss cannot otherwise than occur; and that, as I have also proved, if we adopt means to check this rapid influx, we enormously increase the amount of condensed sulphurous products.

Then, again, taking one more remark of M. Ellissen (p. 334, No. 406)—"The practical problem, then, remains, to provide an apparatus by which all the sulphurous products during the combustion of gas, *in the ordinary methods in use*, can be completely ascertained." In answer to this, it is easy to see that the employment of the Leslie jet in analytical methods does *not* fulfil this condition; while, on the other hand, a single jet—bat's-wing or fishtail—both giving a vast increase in the sulphur over the Leslie—since everybody knows that one or other of these is extensively used by almost all consumers of gas—most certainly should command the preference in this regard. I confess, therefore, after the very full investigation to which M. Ellissen some years since subjected this matter, I cannot understand how he then proceeds to make the remarkable assertion which I now quote: "I think," he says, "that the apparatus contrived by Dr. Letheby, which is generally employed in England, *fulfils all the conditions* required for that kind of experiment"—*i. e.*, enables us to recover perfectly "the portion of it [the sulphur] which is converted by combustion into sulphurous or sulphuric acid [the only compounds] that can really produce any injurious effect."

Fortunately the series of articles I contributed to this JOURNAL on "Defects in the Apparatus generally used for the Determination of Bisulphide of Carbon in Coal Gas, and Description of a New Apparatus for its Estimation,"* because abounding with almost a crowd of experiments upon the capability of different burners as converters of this so-called bisulphide of carbon into sulphurous or sulphuric acid, when thoroughly examined will enable us to form a just and perfect estimate of M. Ellissen's views embodied in his letter of the 15th of April last (JOURNAL OF GAS LIGHTING, No. 406, May 12, 1868). I will only remark, at this juncture, that I anticipated when I made those experiments that this question would sooner or later resolve intself into the two perfectly distinct shapes which it has now assumed—that is, that no gas company would be held responsible, in future legislation, for any proportion of bisulphide of carbon or carbo-sulphide compounds which, by *resisting combustion*, produce no noxious or injurious compounds in rooms, &c., where it might be burned. I saw this very early on when employed in those experiments. In September, 1866 (JOURNAL OF GAS LIGHTING, No. 363, vol. xv., page 698), I made the remarks I now extract: "Are there *some* sulphur constituents present in coal gas which resist with great obstinacy, by even slow but yet very complete burning in atmospheric air, oxidation into sulphurous acid?" In November of that year I further observed (JOURNAL OF GAS LIGHTING, No. 367, vol. xv., page 819), "But supposing it should eventually be found that combustion by any description of jet fails to effect the conversion of the *entire* amount of the bisulphide sulphur into sulphurous acid—for the facility with which some portions of gas obstinately resist combustion in very hot burning jets is really extraordinarily curious—are we quite justified *in holding a gas company responsible for any certain proportion of this bisulphide sulphur* which, under normal conditions of combustion, effectually resists burning into deleterious sulphurous compounds, from which no injurious atmospheric contamination can occur?† In order to thoroughly carry out this line of reasoning, the selection of the most perfect of burners to ensure the most complete or *greatest possible* conversion of the bisulphide sulphur into a compound *capable of entire retention in some form of receiver which should unequivocally absorb it*, has not escaped my close attention." The quotation of these observations is fitly supplemented by one more extract from this JOURNAL of May 14 in the following year (No. 380, vol. xvi., page 352): "*No sort of combustion by a burning jet can effect the entire conversion of bisulphide of carbon into sulphurous acid.*"

In these three quotations lies the pith and marrow, in the essentially "*practical*" sense, of coal gas sulphur methods of analysis. I propose, in the course of these contributions, to consider—

1. That sulphur being a normal constituent of *every* portion of gas coal, it is hopeless to expect to effect much reduction of the bisulphide in the gas produced from it by mechanical means,* such as picking away the pyritical portions of the coal.

2. That, with a view to extract its bisulphide of carbon, coal gas may be subjected to the action of some alkaline sulphides to a degree in which its illuminating power may be much injured.

3. The "practical" estimation of coal gas sulphur upon which future legislation must be based.

4. The "theoretical," or perfectly exact methods which may be brought into requisition for this purpose—a point quite apart from the last proposition.

(*To be continued.*)

* See JOURNAL OF GAS LIGHTING, No. 360, vol. xv., page 614; No. 363, vol. xv., page 696; No. 367, vol. xv., page 817; No. 377, vol. xvi., page 206; No. 379, vol. xvi., page 302; and No. 380, vol. xvi., page 350.

† By accident this passage in my communication to this JOURNAL of May 26 last contained an error by which the sense was materially affected.

* This was clearly proved to me when working with the apparatus employed in my experiments "On the Action of Sulphide of Ammonium upon the Bisulphide of Carbon in Coal Gas," drawn in No. 342, vol. xiv., page 842, during November, 1865. I believed this fact to be generally known, or I should have anticipated Mr. Hawksley in that announcement (No. 370, Dec. 25, 1866).

Register of New Patents.

1931.—JOHN SOMERVILLE, of the Gas-Works, Maidstone, and ROBERT ELSDON, of Maidstone, in the co. of Kent, engineer, for "*Improvements in the treatment of apparatus employed in the manufacture and materials used in the purification of gas.*" Patent dated July 3, 1867.

This invention relates to the treatment of the retorts employed, and the materials used in the production of illuminating or heating gas, the object being to remove as quickly as possible, without detriment to the retorts employed, the deposit of carbon which accumulates and adheres to the interior surface of them, or the ovens used in the distillation of coals or other materials for the manufacture of gas, and which operation is commonly called "scurfing."

The improvements consist in scurfing by the following means:—A pipe of cast iron or fire-clay, or one constructed partly of cast iron and partly of fire-clay, or of any suitable material or combination of materials, is inserted in the retort so as to lie along the bottom thereof, and is of sufficient length to reach from the front to within a few inches of the back. The retort, which is heated in the ordinary manner is then charged with chalk, limestone, or "foul gas lime." A special retort-lid or cover is provided, having a hole through which the pipe before spoken of is passed, leaving a few inches projecting on the exterior. The pipe is furnished near its outer extremity with an ordinary throttle, or other suitable valve, for the purpose of regulating the quantity of air to be admitted to the retort. The lid is luted and secured to the mouthpiece of the retort in the usual way; the junction between the pipe and the cover should also be luted in a similar manner. The cap of the ascension-pipe is then removed, and a current of air established through the pipe and amongst the chalk, limestone, or foul gas lime, in the retort; by this means the chalk, limestone, or foul gas lime will be converted in the course of a few hours into quick lime, and during the process the carbon adhering to the retort will be carried off through the ascension-pipe.

Where double or through retorts are used, the cast-iron or other suitable pipe before mentioned may be dispensed with, the mouthpiece at the end of the retort opposite to that from which the cap of the ascension-pipe has been removed being left open, or only partially closed by an ordinary lid or cover. The retort itself will then serve, in lieu of the pipe, to establish the requisite current of air through and amongst the chalk, limestone, or foul gas lime with which the retort is charged. In some cases it may be found necessary to make a temporary connexion between the top of the ascension-pipe and some suitable outlet, so as to convey away more completely any objectionable effluvia that may arise in the course of the operation. By this process not only is the retort freed from a deposit which is as prejudicial to the economical manufacture as it is annoying to the gas maker, but an excellent lime is produced without injury to the retort, and which may be used for the purification of gas or other purposes. It is also of the greatest advantage in works where the gas is purified by lime, as it enables the manufacturer, by charging the retort with the spent or foul gas lime from the purifiers, to revivify, and thus admit of the repeated use of the same material; while it affords means for the utilization of what is ordinarily a very offensive residual.

1937.—WILLIAM GALLOWAY and GEORGE PLANT, both of Manchester, in the co. of Lancaster, for "*Improvements in the manufacture of welded tubes, and in apparatus employed for that purpose, which latter are partly applicable to other purposes.*" Patent dated July 3, 1867.

These improvements are effected by, first, welding conical or tapering tubes by placing the skelp upon a tapering mandril of a form corresponding with that of the interior of the tube when finished, and then passing the same through a rolling-mill, the rolls of which have grooves of a tapering form, and of a circumferential length equal to or greater than the length of the tube. Secondly, by constructing smiths' fires for heating conical or other tubes with two opposite tuyeres, or two opposite rows of tuyeres, arranged and operating as described. Thirdly, by arranging in smiths' fires one or more annular pipes having apertures serving as tuyeres, the annular water spaces of which pipes communicate with one or more strong water chambers or steam-boilers.

1967.—WILLIAM ROBERT LAKE, of 8, Southampton Buildings, Chancery Lane, in the co. of Middlesex, consulting engineer, for "*Improvements in the manufacture of illuminating gas, and in apparatus employed in the said manufacture.*" (Complete specification.) A communication. Patent dated July 4, 1867.

This invention consists chiefly in preventing the formation of carbon in retorts, by relieving them from the pressure caused by the sealing of the mouths of the tubes in the hydraulic main.

A series of retorts is arranged in the usual manner, and connected

by tubes with the hydraulic main. The ends of the said tubes enter the main on its upper side, and extend about half way to its bottom. It is customary to fill the main with water through a supply-pipe high enough to cover or "seal" the open ends or mouths of the tubes leading from the retort. At that level a pipe is connected to the main for the coal tar to pass off through, by means of which the contents of the hydraulic main are maintained constantly at the proper level. It is obvious that with this arrangement the gas which flows from the retort through the pipes must displace the water and tar, which thus covers or "seals" their mouths, in order to enter the main; and, as this necessarily requires considerable pressure, it follows that the contents of the retort must at all times during the roasting process be subjected to this pressure. It has been found by experiment that if this pressure can be removed during the roasting process no carbon, or but very little, if any, will be deposited in the retorts. As the simplest manner of doing this, and at the same time retaining the means of sealing the mouths of the pipes, to prevent the back flow of the gas when the retorts are opened for emptying and recharging them, it is proposed to apply to the main another escape-pipe, at a lower level than the ordinary pipe. Each of these pipes is provided with a cock or valve, so that either may be closed or opened at will; and, by opening the valve in the lower pipe, and permitting the tar or tar and water to flow through it, the contents of the main can at any time be reduced, thereby unsealing the mouths of the pipes, and of course permitting the gas to flow from the retorts as fast as formed into the hydraulic main, thus relieving the retort of the pressure which usually exists in them, and thereby preventing the formation and deposit of carbon therein. When the retorts are in operation, the tar is allowed to pass off through the lower pipe; but when it is desired to open the retorts for any purpose, the cock in this pipe is closed, and that in the upper pipe is opened, the contents of the main in such case being raised to a level with the said upper pipe, thus sealing or closing the mouths of the dip-pipes, and thereby preventing the back flow or escape of any gas from the main.

1978.—Thomas Caless Thomas, of Banbury, in the co. of Oxford, cutler and gas and water fitter, for "*Improvements in water-closet fittings.*" Provisional protection only obtained. July 6, 1867.

This invention consists in so arranging the fittings that a regulated quantity of water may be discharged for flushing the basin every time the closet is used. This is effected by establishing at some convenient point above the level of the pan a small cistern or chamber with a tumbling-trough, which is always kept charged with the regulated quantity of water, and is filled from a reservoir above. The tumbling-trough is filled from the supply-pipe through a ball-cock, which only admits a certain quantity; it is mounted on centre pins, so that when required it may be tipped over, in order to discharge the water. It is worked by gearing consisting of bands and pulleys connected to a lever, which may be actuated by a handle in the ordinary manner; or it may be connected to the door of the closet, so that it may be actuated whenever the door is opened. The pan is provided with a syphon, and when the lever is pulled up or the door opened the tumbling-trough will be pulled over on its axis, and the water will be discharged therefrom and allowed to rush down the exit-pipe with considerable force into the pan.

1984.—William Archer, of Birmingham, in the co. of Warwick, coach builder, for "*Improvements in rotary engines and rotary pumps.*" Provisional protection only obtained. Dated July 6, 1867.

The steam-chamber of a rotary engine (in which the steam is caused to give motion to the piston), is made of a circular or ring-like figure; that is, of a figure such as would be produced by taking a tube open at both ends and bending it into a circular form, and joining its two ends. This chamber is situated horizontally, and in its centre is a vertical shaft to which rotary motion is to be given. In the steam-chamber is a piston capable of travelling round the steam-chamber, and the said piston communicates with the shaft described by means of an arm fixed on the shaft, and connected to the piston through a slot or opening in the upper or inner side of the steam-chamber. This slot or opening is covered by means of an annular cover which fits thereon, and which is carried round by the motion of the piston. The chamber has a plate or valve which crosses it, and which is capable of being temporarily withdrawn to permit of the passage of the piston. On one side of the plate or valve is an opening at which the steam enters, and on the other side is the exhaust-pipe at which the waste steam passes out. When steam is admitted between the plate or valve and piston the latter is carried forward by the pressure of the steam, and traverses the circular chamber, carrying the cover and arm with it, and giving rotary motion to the shaft on which the arm is fixed. After the piston has travelled along nearly the whole length of the chamber, and has arrived at the other side of the plate or valve, steam is shut off, and the plate or valve is withdrawn to allow the piston to pass it. On the piston passing the exhaust-pipe, the steam which has urged it forward escapes by the exhaust-pipe. On the piston passing the plate or valve the latter is made again to cross the steam-chamber, and steam being again admitted between the plate or valve and the piston, the latter is again urged forward. The steam may be worked expansively or cut off when the piston has performed only part of its stroke. The steam-chamber is enclosed in a steam-tight box, into which steam is admitted from the boiler. The pressure of this steam on the cover of the slot balances that in the chamber, and there is no tendency in the said cover to rise from the slot.

1987.—Nathan Thompson, of 15, Abbey Gardens, St John's Wood, in the co. of Middlesex, for "*Improvements in unions or apparatus, for connecting together pipes or tubes, and for stopping the ends thereof.*" Provisional protection only obtained. Dated July 6, 1867.

This invention relates to a former patent, dated June 8, 1867 (No. 1694), and consists, firstly, in the use of a ring or collar fixed in the middle of the centre sleeve or tube of the union to act as a stop to the packing, but so as to allow of the free passage of the tubes through such ring. The invention consists, secondly, in the application of a packing composed of a ring or tube of soft metal, the inner surface of which fits the tubes or pipes to be connected together, whilst the outer surface thereof, at one or both ends, is of a conical form, and, in order to compress such packing around the tubes or pipes, he employs rings or tubes which are conical on their inner surfaces, and which are connected to, or acted upon, by a screwed sleeve or tube.

APPLICATIONS FOR LETTERS PATENT.

1848.—Francis Reddicliffe, late of Seglenlas Mine, Llanidloes, in the co. of Montgomery, now of Hendre Mine, in the co. of Flint, mine agent, for "*Improved mechanical arrangements applicable to pump-buckets, and partially applicable to pistons.*" June 5, 1868.

1855.—Andrew Stephen, of the Middlesex Hospital, doctor of medicine, for "*Improvements in apparatus for ventilating buildings and other structures.*" June 5, 1868.

1868.—James Young, of Kelly, in the co. of Renfrew, N.B., gentleman, for "*Improvements in treating hydrocarbons.*" June 6, 1868.

1872.—George Watson, of Bromley Street, Commercial Road, in the co. of Middlesex, engineer, Walter Joseph Baker, and Samuel Thomas Baker, both of Southwark Bridge Road, in the co. of Surrey, civil engineers, for "*An improved artesian tube well and lifting force-pump.*" June 8, 1868.

1891.—John Carter, trading as Lee and Carter, of 440, Strand, in the co. of Middlesex, bookseller, for "*An improved portable closet or commode seat.*" June 10, 1868.

1902.—William Henry Westwood, of the firm of Westwood and Wrights, of Dudley, in the co. of Worcester, manufacturers, for "*Improvements in gasholders, gas purifiers, and other apparatus used in the manufacture and distribution of gas for illumination.*" June 10, 1868.

1908.—Stanislaus Joseph Paris, David Drummond, and Daniel Hamer, all of Manchester, in the co. of Lancaster, for "*Certain improvements in valves.*" June 11, 1868.

1915.—Frederic Warner, of Jewin Crescent, in the City of London, engineer and founder, for "*Improvements in obtaining water.*" June 11, 1868.

1926.—George William Cutmore, of Holloway, in the co. of Middlesex, for "*Improvements in apparatus for cooling liquids, in connecting pipes or tubes thereto, and in joining or connecting pipes for other purposes.*" June 12, 1868.

1930.—Clement Rostaing, residing at 29, Rue le Marois, and Elie Vivet, of 43, Rue des Bourdonnais, both in Paris, in the empire of France, for "*An improved material suitable for making steam, water, and gas-tight joints, and for similar uses.*" June 12, 1868.

1948.—Léon Stanislas Thomassin, of 31, Rue d'Enghien, Paris, in the empire of France, chemist, for "*Process and apparatus for producing a combustible and lighting gas or carburetted hydrate of oxide of lypil, C^6. H^8. O^6. HO.*" June 15, 1868.

1954.—William Cameron Sillar, of 62, Cornhill, in the City of London, bullion broker, Robert George Sillar, of 3, Grange Road, Upper Norwood, gentleman, and George William Wigner, of Grove Lane, Camberwell, both in the co. of Surrey, chemist, for "*Improvements in deodorizing and purifying sewage and making manure therefrom.*" June 15, 1868.

1980.—Charles Hengst, of St. George's Terrace, engineer, and Henry Watson, of Grove Road, gas-fitter, both of Fulham, in the co. of Middlesex, for "*An improved mode of and means for manufacturing gas for lighting and heating purposes.*" June 18, 1868.

GRANTS OF PROVISIONAL PROTECTION.

988.—George Bertie Paterson, of 15, Arnold's Place, Francis Street, Walworth, in the co. of Surrey, machinist, for "*Improvements in gas-meter indexes.*" March 24, 1868.

1215.—Ernest Dubois and Edward Casper, both of 101, Cannon Street, in the City of London, merchants, for "*Improvements in wet gas-meters.*" A communication. April 11, 1868.

1250.—John Henry Johnson, of 47, Lincoln's Inn Fields, in the co. of Middlesex, gentleman, for "*Improvements in heating and ventilating, and in apparatus employed therein.*" A communication. April 16, 1868.

1458.—David Pitcairn Wright, of the firm of Wright and Butler, of Birmingham, in the co. of Warwick, lamp manufacturers, for "*Improvements in the method of and means or apparatus for pouring, drawing off, measuring, and regulating the flow of liquids.*" May 5, 1868.

1692.—Jules Oury, of Blois, in the empire of France, civil engineer, for "*An improved construction of meter or apparatus for measuring liquids or gases, applicable also for obtaining motive power.*" May 22, 1868.

1712.—Alexander Melville Clark, of 53, Chancery Lane, in the co. of Middlesex, patent agent, for "*Improvements in rotary engines or apparatus, applicable also as a pump-blower or liquid-meter.*" A communication. May 25, 1868.

1729.—Jabez Morgan, of Kidderminster, in the co. of Worcester, manager of works, for "*Improvements in apparatus for regulating the temperature of and ventilating hot-houses, conservatories, and other rooms and buildings.*" May 26, 1868.

1751.—John Scholl, of Berwick Street, Soho, in the co. of Middlesex, engineer, for "*Improvements in gas-burners and in apparatus to be used in connexion therewith.*" May 27, 1868.

1753.—Henry Bailey and Frederick Bailey, of East Retford, in the co. of Nottingham, gas engineers, for "*An improvement in the manufacture of valves for the passage of air, water, or any other liquid or fluid.*" May 28, 1868.

1754.—Richard Fell, of Robinson Row, in the co. of Middlesex, engineer, and Robert Barlow, of Shacklewell Lane, in the co. of Middlesex, builder, for "*Improvements in apparatus for preventing waste of*

water in or from water-closets and drinking fountains, cisterns, tanks, and other like receptacles." May 28, 1868.

1755.—WILLIAM DALZIEL, of Deptford, in the co. of Kent, brassfounder, for "*An improved combination of cock and valve for controlling the flow of water from constant-supply pipes.*" May 28, 1868.

1785.—HEINRICH HIRZEL, of Leipzig, in the kingdom of Saxony, professor of chemistry, for "*Improvements in the production of inflammable gas and in apparatus to be used therefor.*" May 30, 1868.

1816.—JOHN HENRY JOHNSON, of 47, Lincoln's Inn Fields, in the co. of Middlesex, gentleman, for "*Improvements in pipe-joints.*" A communication. June 3, 1868.

1818.—LEMUEL WELLMAN WRIGHT, of Brooklyn, in the state of New York, U.S.A., for "*Improvements in meters for water and other liquids.*" June 3, 1868.

NOTICES TO PROCEED.

327.—THOMAS ROWAN, of Glasgow, in the co. of Lanark, N.B., chemist, for "*Improvements in removing impurities, such as sulphur and phosphorus, from iron and other ores, and from coal.*" Jan. 30, 1868.

410.—CHRISTOPHER BRAKELL, of Windsor Road, Oldham, in the co. of Lancaster, engineer, for "*Improvements in apparatus for measuring fluids.*" Feb. 6, 1868.

426.—THOMAS WALKER, of Birmingham, in the co. of Warwick, engineer, for "*Improvements in the construction of sewers and drain-pipes or tubes.*" Feb. 8, 1868.

452.—HERRMANN SCHLOTTER, of Köstritz, near Gera, in the principality of Reuss, Germany, for "*An improved method of and apparatus for raising water.*" Feb. 10, 1868.

465.—ARTHUR BRIN, of 11, Rue des Acacias, Paris, France, civil engineer, for "*Certain improvements in apparatus for generating and applying gas from air and hydrocarbon fluids for lighting and heating purposes.*" Feb. 11, 1868.

572.—GEORGE DAVIES, of 1, Serle Street, Lincoln's Inn, in the co. of Middlesex, and 87, St. Vincent Street, in the city of Glasgow, civil engineer and patent agent, for "*Improvements in taps.*" A communication. Feb. 20, 1868.

611.—WILLIAM EDWARD NEWTON, of 66, Chancery Lane, in the co. of Middlesex, civil engineer, for "*Improvements in the manufacture of illuminating gas.*" A communication. Feb. 24, 1868.

770.—ALEXANDER MELVILLE CLARK, of 53, Chancery Lane, in the co. of Middlesex, for "*Improvements in steam-pumps.*" A communication. March 5, 1868.

1090.—MILES HAWTHORNTHWAITE, of Lancaster, clerk, and THOMAS ABBOTT, of Lancaster, in the co. of Lancaster, plumber, for "*Improvements in taps, cocks, or valves for water, gas, steam, or other liquids.*" March 31, 1868.

1481.—JOHN YOUNG, of Aspull, in the co. of Lancaster, for "*Certain improvements in the construction of ovens to be employed in the manufacture of fuel termed 'coke,' oil, and gas.*" May 6, 1868.

1767.—HIRAM HAINES, of the city and state of New York, U.S.A., now of 8, Southampton Buildings, Chancery Lane, in the co. of Middlesex, for "*Improvements in the manufacture of lead pipe and lead pipe lined or cased with tin or other metal.*" A communication. May 28, 1868.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

1370.—WILLIAM RICHARD WILLIAMS, "*Improvements in dry gas-meters.*" May 18, 1865.

1381.—GEORGE HENRY BROOKES, "*Improvements in sliding gas pendants or chandeliers.*" May 19, 1865.

1386.—WILLIAM DAVEY, "*Improvements in apparatus for washing or purifying coal gas, and for producing ammoniacal water therefrom.*" May 19, 1865.

1395.—WILLIAM SMITH and GEORGE BROWNE SMITH, "*Improvements in wet gas-meters.*" May 20, 1865.

1411.—EDWARD M'NALLY, "*Certain improvements in apparatus for cutting or forming screws, which are also applicable for cutting pipes or tubes.*" May 23, 1865.

1437.—GEORGE BRAY, "*An improved gas-burner.*" May 25, 1865.

1447.—JEAN ALPHONSE HEINRICH, "*A new system of rotative machines to be used as steam-engines and water-pumps.*" May 26, 1865.

1458.—RICHARD ARCHIBALD BROOMAN, "*Improvements in apparatus for measuring gas and other fluids.*" May 27, 1865.

1507.—WILLIAM CLARK, "*Improvements in the means of carburetting or treating aëriform fluids for lighting and heating purposes, and in apparatus for the same.*" June 1, 1865.

1516.—JOHN NUTTALL, "*Improvements in valves for steam and other fluids and liquids.*" June 2, 1865.

1534.—THOMAS GENTLE and JOSEPH ALLMARK, "*Improvements in turbines.*" June 5, 1865.

1548.—HENRY HERMANN KROMSCHROEDER and JOHN FREDERICK GUSTAV KROMSCHROEDER, "*Improvements in dry gas-meters.*" June 6, 1865.

1553.—JAMES HOWARTH, "*An improved method and apparatus for distilling coal, shale, and other carbonaceous substances.*" June 7, 1865.

Parliamentary Intelligence.

HOUSE OF LORDS.

MONDAY, JUNE 8, 1868.

WORTHING GAS BILL.—The opposition was withdrawn.

The STAFFORDSHIRE POTTERIES WATER Bill was read a second time, and committed.

The YSTRAD GAS AND WATER Bill was read a third time, with the amendments, passed, and sent to the Commons.

The CITY OF LONDON GAS Bill was read a second time, and committed.

The METROPOLIS SUBWAYS Bill was read a third time, and passed.

The DUNDEE GAS Bill, and the SUNDERLAND AND SOUTH SHIELDS WATER Bill, were brought from the Commons, read a first time, and referred to the Examiners.

The LEEDS NEW GAS Bill was returned from the Commons agreed to.

The BRENTFORD GAS; BURSLEM AND TUNSTALL GAS; and the CLEVEDON GAS Bills, were returned from the Commons, with the amendments agreed to.

Petitions were deposited against the BRADFORD WATER-WORKS AND IMPROVEMENT Bill, from the Local Board of Health of the District of Calverley and Idle; owners of mills on River Wharfe and others;—against the GASLIGHT AND COKE COMPANY'S Bill, from the Corporation of London; Metropolitan Board of Works; Vestry of Marylebone; Vestry of St. Pancras; Equitable and other companies (being on the north side of the Thames); London and other metropolitan gas companies (being on the south side of the Thames; and the Imperial Gaslight and Coke Company;—against the STAFFORDSHIRE POTTERIES WATER Bill, from the Corporation of Newcastle-under-Lyne; Local Board of Health for the District of Tunstall; and inhabitants of the Ecclesiastical District Parish of Kidsgrove;—and against the WINDSOR AND ETON WATER Bill, from Conservators of River Thames.

TUESDAY, JUNE 9.

The YEADON AND GUISELEY GAS Bill was returned from the Commons agreed to, with amendments. The said amendments were considered, and agreed to.

The PETERBOROUGH GAS Bill was reported, with amendments.

The EASTBOURNE GAS Bill and CHICHESTER GAS Bill.—No one appearing to oppose, these Bills will be proceeded with as unopposed measures.

The HALIFAX CORPORATION WATER-WORKS AND IMPROVEMENT Bill, and the GASLIGHT AND COKE COMPANY'S Bill, were read a second time, and committed.

THURSDAY, JUNE 11.

The WORTHING GAS Bill was reported, with amendments.

The LLYNVI VALLEY GAS; BRADFORD WATER-WORKS AND IMPROVEMENT; READING WATER; WARRINGTON WATER; and MARYPORT DISTRICT AND HARBOUR Bills, were read a second time, and committed.

FRIDAY, JUNE 12.

The MERTHYR TYDFIL GAS Bill; the CHICHESTER GAS Bill; the TOPSHAM, WOODBURY, AND LYMPSTONE WATER Bill; the WARRINGTON WATER Bill; and the MARYPORT DISTRICT AND HARBOUR Bill, were reported, with amendments.

The READING WATER Bill was reported, without amendment.

The DARTFORD WATER Bill, and the WINDSOR AND ETON WATER Bill, were read a second time, and committed.

The SUNDERLAND AND SOUTH SHIELDS WATER Bill, and the DUNDEE GAS Bill, were read a second time.

The PETERBOROUGH GAS Bill was read a third time, with the amendments, passed, and sent to the Commons.

The CITY OF LONDON GAS Bill, and the GASLIGHT AND COKE COMPANY'S Bill, were referred to a Select Committee, consisting of Earl Romney (chairman), Earl Albemarle, Earl Ducie, Lord Vaux of Harrowden, and Lord Feversham, who will sit on Wednesday, June 17, at eleven o'clock.

MONDAY, JUNE 15.

The SUNDERLAND AND SOUTH SHIELDS WATER Bill, and the DUNDEE GAS Bill, were committed.

The MARYPORT DISTRICT AND HARBOUR Bill, was read a third time, with the amendments, passed, and sent to the Commons.

The YSTRAD GAS AND WATER Bill was returned from the Commons, with the amendments agreed to.

The STAFFORDSHIRE POTTERIES WATER Bill; the HALIFAX CORPORATION WATER-WORKS AND IMPROVEMENT Bill; the BRADFORD WATER-WORKS AND IMPROVEMENT Bill; and the WINDSOR AND ETON WATER Bill, were referred to a Select Committee, consisting of Lord Lyveden (chairman), the Marquis of Exeter, Earl Selkirk, Lord Castlemaine, and Lord Kesteven, who will sit on Thursday, June 18, at eleven o'clock.

TUESDAY, JUNE 16.

The READING WATER Bill was read a third time, and passed.

The MERTHYR TYDFIL GAS Bill; the CHICHESTER GAS Bill; and the WARRINGTON WATER Bill, were read a third time, with the amendments, passed, and sent to the Commons.

CITY OF LONDON GAS Bill.—The Lord Bolton was appointed to sit as a member of the Select Committee, in the place of the Earl of Albemarle.

THURSDAY, JUNE 18.

The SUNDERLAND AND SOUTH SHIELDS WATER Bill was reported, without amendment.

The DERBY WATER Bill was brought from the Commons, read a first time, and referred to the Examiners.

CITY OF LONDON GAS Bill.—The *locus standi* of the petitioners not having been proved, the Bill will be proceeded with as an unopposed measure.

The GASLIGHT AND COKE COMPANY'S Bill was reported from the Select Committee, with amendments.

The STAFFORDSHIRE POTTERIES WATER Bill.—The Lord Monteagle was appointed as a member of the Select Committee, in the place of the Lord Lyveden.

The DUNDEE GAS Bill was referred to a Select Committee, consisting of the Duke of Manchester (chairman), Earl Amherst, Lord Boyle, Lord Abercromby, and Lord Sheffield, who will sit on Monday, June 22, at eleven o'clock

FRIDAY, JUNE 19.

The Lord Chancellor acquainted the House that the further Standing Orders applicable to the DERBY WATER Bill had not been complied with; the Bill was therefore referred to the Standing Order Committee.

The PETERBOROUGH GAS Bill was returned from the Commons, with the amendments agreed to.

The WORTHING GAS Bill was read a third time, with the amendments, passed, and sent to the Commons.

HOUSE OF COMMONS.

MONDAY, JUNE 8.

The DUNDEE GAS Bill was read a third time, and passed.

TUESDAY, JUNE 9.

The CALVERLEY AND HORSFORTH DISTRICT GAS Bill, and the YEADON AND GUISELEY GAS Bill, were read a third time, and passed, with amendments.

WEDNESDAY, JUNE 10.

WATER SUPPLY Bill.—A petition was presented against this Bill, from the Sunderland and South Shields Water Company.

THURSDAY, JUNE 11.

WATER SUPPLY Bill.—Petitions were presented against this Bill, from the Lewes Water-Works Company, Birmingham Water-Works Company, and Swansea.

WATER SUPPLY Bill.—The second reading was deferred till Tuesday, June 23.

FRIDAY, JUNE 12.

The YSTRAD GAS AND WATER Bill.—The Lords amendments were agreed to.

WATER SUPPLY Bill.—A petition was presented against this Bill, from the Sheffield Water-Works Company.

The DERBY WATER Bill was reported.

WEDNESDAY, JUNE 17.

The DERBY WATER Bill, as amended, was considered.

THURSDAY, JUNE 18.

The PETERBOROUGH GAS Bill.—The Lords amendments were agreed to.

The DERBY WATER Bill was read a third time, and passed.

WATER SUPPLY REGULATION.

A BILL to make better Provision for Facilitating and Regulating the Supply of pure Water in Cities, Towns, and Districts throughout the United Kingdom of Great Britain and Ireland.

(*Brought in by Mr.* CLIVE, *Mr.* GOLDNEY, *Mr.* NEATE, *and Mr.* WYLD.)

WHEREAS by "The Water-Works Clauses Acts, 1847 and 1863," certain provisions are made for ensuring a constant supply of water to be kept up for domestic purposes at high pressure, by means of cisterns, tanks, and ball-cocks, and other provisions are made with respect to waste or misuse or fouling of the water so supplied; but such provisions are found to be inefficient as well as inadequate to the wants of the population in many large cities, towns, and districts throughout the United Kingdom:

And whereas in order to secure a daily and constant supply of pure and wholesome water without intermission to every dwelling-house, it is necessary that the same should be kept continuously flowing within pipes to which cocks or taps shall be attached in the manner hereinafter provided:

Be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

Preliminary.

1. In citing this Act in other Acts of Parliament and in legal instruments it shall be sufficient to use the expression "The Water Supply Regulation Act, 1868."

2. This Act shall extend to the before-recited Acts of Parliament as well as to all special Acts of existing water companies, and be incorporated therewith, except so far as the same may be altered or varied by any clauses of this Act. The terms used in this Act shall have the same meaning as the same terms have when used in "The Water-Works Clauses Act, 1847," the word "landowner" in this Act shall mean such person as under the Act of the eighth and ninth years of her present Majesty, for facilitating the inclosure and improvement of commons, would be deemed a person interested in land for the purposes of that Act.

PART I.

As to the Supply of Water by Landowners and Power to Companies and others for Purchasing the same.

3. All the provisions of "The Lands Improvement Company's Act, 1853," and of the several "Lands Improvement Company's Acts, 1855, 1859, and 1863," shall be extended to this Act, and be incorporated therewith, so far as to enable landowners to sink wells or shafts and construct reservoirs and other works for the storeage and distribution of water upon their lands, and for that purpose to make, maintain, alter, or discontinue such reservoirs, water-works, cisterns, tanks, aqueducts, drains, cuts, sluices, pipes, culverts, engines, and other works, and erect such buildings upon the lands and streams, and direct or take the waters supplying or flowing into such streams, as such owners may think proper, for obtaining and providing an efficient supply of water, and may from time to time sell and dispose of such water to any company or persons undertaking to purchase the same, under the provision hereinafter mentioned.

4. The Inclosure Commissioners are hereby empowered, if thereunto required, to make compensation to any landowner or other person having an interest in lands lying above or below or adjacent to the stream which may be used or diverted into any reservoir or other works for the storeage of water so to be constructed, under the provisions of this Act, as hereinbefore mentioned, for any loss or damage which may be occasioned to such lands by the diversion or diminution of such stream for that purpose; and the said Inclosure Commissioners are also empowered to make such inquiries, and to provide such guarantees or securities for protecting the present and future interests of such landowners or other persons in such stream, as they may deem expedient.

5. All water companies and railway companies now or hereafter to be incorporated by Act of Parliament, as well as all persons undertaking to provide a supply of water for any cities, towns, or districts, are hereby empowered to purchase from the owners of any wells, reservoirs, and other works to be made under the provisions of this Act, any quantity of water they may deem necessary for the use of the inhabitants of the said cities, towns, or districts, in addition to and beyond what may be provided by any special Act, or where there is no such special Act, then any quantity which the said company or undertakers may deem necessary for furnishing a fresh supply to such inhabitants; and the said company or undertakers may enter upon any lands, and break up the soil thereof, subject to the proviso hereafter mentioned, to lay down, place, or construct any pipes, conduits, tanks, cisterns, or other works necessary for the conveying such fresh supply of water, and may from time to time repair, alter, or remove any such pipes, conduits, tanks, cisterns, or other works, and do all other Acts which they may from time to time deem necessary for supplying such water for the use of the inhabitants of the said cities, towns, or districts, doing as little damage as can be in the execution of the powers hereby granted, and making compensation for any damage which may be done in the execution of such powers; and if any dispute or question shall arise between the said company or undertakers and such owners, lessees, or occupiers of lands aforesaid, touching the amount of any such damage, the same shall be settled by arbitration in such manner as is provided by "The Lands Clauses Consolidation Act, 1845;" and all the provisions of that Act shall be applicable to determine the amount of any such compensation, and to enforce payment or other satisfaction thereof.

6. Provided always, that nothing herein contained shall authorize or empower any companies or undertakers to lay down or place any pipes, conduits, tanks, cisterns, or other works in any land not dedicated to public use, without the consent of the owners and occupiers thereof, except that such companies or undertakers may at any time enter upon and lay or place any new pipe, conduit, tank, cistern, or other works in the place of any of those existing in any land wherein the same have been already laid down or placed, in pursuance of this or any other Act of Parliament, and may repair or alter the same accordingly.

PART II.

As to the Supply of Water to Dwelling-Houses.

7. The said companies or undertakers shall provide and keep in the pipes, conduits, tanks, cisterns, and other works so to be laid down, placed, or constructed by them as aforesaid, as well as in those already laid down, placed, or constructed under any special Act, a constant, uninterrupted daily supply of pure and wholesome water and sufficient for the domestic use of all the inhabitants of the city, town, or district in which they undertake to supply the same, and shall also cause pipes to be laid down and water to be brought to every dwelling-house within such city, town, or district, so that such constant daily supply shall be laid on at such a pressure as will make the water run into and flow from the tap or cock to be attached to such pipes in every such dwelling-house; and the owner or occupier of every such dwelling-house shall provide a proper tap or cock for that purpose, and shall from time to time keep the same in good and efficient repair, so that such tap or cock shall be always available for such domestic purposes; and the powers and provisions in any special Act, or in "The Water-Works Clauses Act, 1847," for the regulation of cisterns, receptacles, and ball-cocks, so far as the same are applicable, shall be construed to apply to the regulation of all such pipes, taps, or cocks.

As to small Tenements.

8. The said companies or undertakers shall provide and keep in the pipes so to be laid down by them as aforesaid a constant and daily supply of pure and wholesome water, sufficient for the domestic use of the occupiers of all dwelling-houses, or parts of dwelling-houses, occupied as separate tenements, the annual value of which houses or tenements shall not exceed the sum of *ten pounds;* such supply shall be daily and constantly laid on at such a pressure as will make the water run into and flow from the tap or cock to be attached to such pipes in such dwelling-houses or tenements, and the owners of such dwelling-houses or parts of dwelling-houses shall be liable to the payment of any rates imposed by any special Act for the supply of water, instead of the occupiers thereof; and the person receiving the rents of any such house or tenement from the occupier thereof on his own account, or as agent or receiver for any person interested therein, shall be deemed the owner of such house or tenement; and the powers and provisions in any special Act, or in "The Water-Works Clauses Acts, 1847 and 1863," for the recovery of rates from occupiers, shall be construed to apply to the owners of such houses and tenements only.

9. The owners of all such dwelling-houses or parts of dwelling-houses occupied as separate tenements, the annual rent of which shall not exceed *ten pounds*, whenever such water shall be daily and constantly supplied, shall provide a proper tap or cock to be attached to the pipes to be laid down in all such dwelling-houses or tenements, and shall from time to time keep and maintain the same in good and efficient repair; and the powers and provisions in any special Act, or in "The Water-Works Clauses Act, 1847 and 1863," for the regulation of cisterns, receptacles, and ball-cocks, so far as the same are applicable, shall be construed to apply to the regulation of all such pipes, taps, or cocks.

10. If it shall appear to the churchwardens and overseers of the poor of any parish or township that any dwelling-houses or parts of dwelling-houses so occupied as separate tenements as aforesaid are not provided with a daily and constant supply of water, according to the provisions of this Act, the said churchwardens and overseers shall, with the consent of the vestry, give notice to the owners of such dwelling-houses and tenements, requiring them to supply and do all such works as may be necessary for that purpose, and if such notice be not complied with the said churchwardens and overseers shall, with the consent aforesaid, authorize the said companies or undertakers to do such works, and recover the expenses incurred thereby from such owners in like manner, and with the same remedies for the non-payment, as rates for the maintenance of the poor are recoverable in such parish or township; and the said companies or undertakers, upon the requisition of the said churchwardens and overseers of the poor, shall supply such daily and constant supply of water to such houses and tenements, and the rate for such supply shall be regulated according to the terms which may be agreed upon between the said churhwardens and overseers of the poor.

11. Nothing in this Act shall interfere with any rates of existing water companies, nor with any powers and provisions of special Acts for the supply of water, except so far as the same may be extended, altered, or varied by this Act.

PART III.

Powers to Borrow Money.

12. All the provisions of "The Lands Improvement Company's Act, 1853," and of the several "Lands Improvement Company's Acts, 1855, 1859, and 1863," of the Act of the tenth and eleventh Victoria, chapter eighteen, "to facilitate the drainage of lands in England and Wales," and of the thirteenth and fourteenth Victoria, chapter thirty-one, "to authorize further advances of money for drainage and the improvement of landed property in the United Kingdom, and to amend the Acts relating to such advances," shall be extended to this Act, so far as to enable landowners, water companies, railway companies, and undertakers to borrow money, and give securities for repayment of the same, for the purpose of carrying into effect the provisions of this Act.

13. Water companies are hereby empowered to charge existing rates, or to impose additional rates for the repayment of any loans to be contracted by them for the purpose of carrying into effect the provisions of this Act.

14. Railway companies are hereby empowered to issue debentures or shares, in addition to any existing debentures or shares, for the amount of any loans to be contracted by them for defraying the expenses of making and laying down pipes and constructing works for the conveyance and supply of water, under the provisions of this Act.

MALTA AND MEDITERRANEAN GAS COMPANY, LIMITED.

The Ordinary General Meeting of the Shareholders of this Company was held at the City Terminus Hotel, Cannon Street, on Monday, June 8—Lord ALFRED HERVEY in the chair.

The SECRETARY (Mr. E. P. Rowsell) having read the notice convening the meeting, the following report and statements of account were presented:—

In making their annual report, the directors have the pleasure of recommending a further increase in the dividend on the ordinary shares. After providing for interest on the debentures, and for dividend on the preference shares, sufficient balance remains for a dividend of 5 per cent. on the ordinary capital, and the directors propose the declaration of such dividend accordingly.

At both the stations at Malta, and at the Corfu station, satisfactory progress has been made during the past year. At Trapani and Marsala the severity of the cholera last summer proved a serious drawback, and both at these stations and at Corfu the extreme cheapness of petroleum has somewhat affected the consumption; nevertheless, at Corfu, the profit has equalled expectation, and even in this, the first year of working, a small return has been made by Trapani. The price of petroleum in London is now advancing.

Pursuant to the resolution of the extraordinary general meeting held in June, 1867, the directors allotted among the proprietors 4000 shares, of £5 each; but the allotments having been accepted only in a few instances, no issue of shares took place. Debentures to the amount of £2800, under the resolution just referred to, having been issued, and it being likely that some further debentures may be placed from time to time which may increase the amount to £5000, the directors now propose to issue 3000 ordinary shares, representing £15,000, thus making up the £20,000 authorized by the said resolution. The shares having already been offered at par and declined, the directors (still following the resolution) now purpose allotting them *pro ratâ* at the price of £4 per share; and at that price they have every confidence the proprietors, looking not only at the need of relieving the company from inconvenience, but at the real value of the investment, will readily accept them. The proportion to each proprietor will be one in six of his present holding, and, on payment of £1 per share, he will be credited £2 in the books of the company.

The directors think the time has now arrived when the holding half yearly meetings will be attended with advantage; and they are desirous of paying a dividend on account of the year, not only on the preference shares, as at present, but on the ordinary shares also.

The directors retiring from office are—Edwin Crosley, Esq., and William Gerard Lysley, Esq., who being eligible, offer themselves for re-election.

The auditors, Henry M'L. Backler, Esq., and James Le Geyt Daniell, Esq., likewise retire, and being eligible, also offer themselves for re-election.

General Balance-Sheet, March 31, 1868.

Dr.			*Cr.*		
To Capital—			By Preliminary expenses		£1,614 14 3
£5 per sh. on 12,000 ordinary shares.	£60,000 0 0		Outlay—		
£5 per sh. on 6000 preference shares.	30,000 0 0		No. 1 station	£38,334 12 9	
	£90,000 0 0		No. 2 ,,	23,927 3 8	
Loans on debentures	32,800 0 0		No. 3 ,,	17,409 16 3	
Bills payable	9,361 4 9		No. 4 ,,	19,435 6 0	
Sundry creditors	2,451 10 11		No. 5 ,,	13,168 13 0	
Reserve-fund	605 18 9			112,275 11 8	
General revenue account	£5,109 12 1		Sundry accounts	1,846 3 0	
Less dividend on preference shares, to Sept. 30, 1867, already paid	1,053 19 11		Ditto debtors	4,676 1 0	
	4,055 12 2		Bills receivable	1,337 11 9	
			Goods *in transitu*	£1,396 10 10	
			Stocks	15,094 14 1	
				16,491 4 11	
			Cash	1,033 0 0	
	£139,274 6 7			£139,274 6 7	

Profit and Loss, March 31, 1868.

Dr.			*Cr.*		
To Coal	£5,668 18 4		By Gas	£15,758 19 4	
Gas-making—wages	1,420 3 11		Coke	1,910 11 3	
Gaslights—salaries	492 2 0		Tar	95 2 3	
Charges on street lights	835 13 10		Rental of meters	343 6 10	
Lime and purifying materials	127 1 5		Meters	30 11 5	
Wear and tear	557 1 5			£18,138 11 1	
Rents	54 18 6		Transfer fees	3 2 6	
Stock	55 14 4				
General expenses	1,023 9 9				
	£10,235 2 6				
Bad debts, &c.	£51 6 0				
Loss on fittings	316 1 0				
	367 7 0				
London expenses	1,177 14 0				
Exchange	280 18 9				
Interest on debentures	£735 14 4				
Interest and discount	249 11 4				
	985 5 8				
General revenue	5,095 5 8				
	£18,141 13 7			£18,141 13 7	

General Revenue Account.

Dr.			*Cr.*		
To Dividend on preference shares, to Sept. 30, 1867		£1,053 19 11	By Balance from March, 1867		£14 6 5
Balance thus divisible—			Profit and loss		5,095 5 8
Required to complete dividend on preference shares, for the year to March 31, 1868	£1,050 0 0				
Required to pay 5 per cent. on the ordinary shares for one year	3,000 0 0				
	£4,050 0 0				
Balance to next account	5 12 2				
	4,055 12 2				
		£5,109 12 1			£5,109 12 1

The report of the company's engineer was as follows:—

Gentlemen,—I beg to submit my annual report on your stations. The tota increase of lights during the year is as under:—

		Public.	Private.	Total increase.
No. 1 station	Valetta	155	802	957
,, 2 ,,	3 Cities	105	141	246
,, 3 ,,	Corfu	18	342	360
,, 4 ,,	Trapani	74	495	569
,, 5 ,,	Marsala	nil	121	121
		352	1901	2253

The coke stocks have been heavy during the year, but I am glad to be able to report that they are now all sold off.

The average of unaccounted gas on the five stations (including that used on the works and offices) does not exceed 5½ per cent. of the quantity made.

The average produce per ton of coal carbonized in your stations for the year has been—

Gas	10,025 cubic feet.
Coke	34½ bushels.
Tar	5 gallons.

The illuminating power of the gas supplied has been such as amply to satisfy the requirements of the contracts made with the several authorities.

Having so recently visited the stations, I am pleased to be able to report that in all cases I have received the assurance of the authorities that the public service is carried out to their entire satisfaction.

I am also enabled to state that the buildings, retorts, and apparatus for the generating, purifying, and distribution of gas, are in good condition and preservation.

The CHAIRMAN, in moving the adoption of the report, expressed his regret at the absence of Mr. Nicol, through indisposition, and that it had consequently fallen upon him to preside on the present occasion. Referring to the first paragraph in the report, he congratulated the shareholders on the circumstance of the directors being able to recommend an increase of 1 per cent. in the dividend. This increase, he said, was the more gratifying inasmuch as the company had been making for some time past a steady advancement. In 1865 the dividend was only 2½ per cent.; in 1866 it was 3 per cent.; in 1867, 4 per cent.; and now 5 per cent. This was a very satisfactory state of things, because, like other undertakings, this company had not been altogether free from difficulties in the past year. In the first place, they had had increased charges to meet. The difference in exchange had cost £70 or £80, and the additional charge on the preference shares amounted to £630, and there had been an increase on the debentures issued to the contractors for the Trapani and Marsala works. According to the terms of the contract they had previously borne the whole of the 6 per cent. to which the debentures were entitled, but last year they paid only 4 per cent.; the company had therefore had to meet the 2 per cent. They had also been deprived of the profits heretofore made on the fittings, it having been thought judicious by the directors to reduce the charges for fittings to such a price as would just cover their actual cost. Unfortunately, however, there had been a positive loss under this head, arising from the distressing condition of some of the towns supplied by the company. They had also had to suffer from the competition of petroleum, owing to the great accumulation which had taken place in the stock of that article causing the price to reach a very low figure. He believed he was quite right in predicting that such an unprecedented state of things was not likely to occur again. Notwithstanding all their difficulties, however, there had been an increase in the gas-rental of 50 per cent., and a total increase in the number of lights supplied of 2253. The working at the several stations had been perfectly satisfactory, and he believed the company could bear comparison in this respect with any other company in Europe. The quality of the gas had been such as to satisfy the public, while, owing to the excellent manner in which the works were constructed, the wear and tear had been comparatively trivial. The quantity of gas unaccounted for was only 5½ per cent., which was less than almost any other company could boast of. The position of the undertaking now was that they must have more capital. In conformity with the resolutions of the last meeting, the directors had endeavoured to get out additional shares, but they had failed, owing, as he believed, to their being issued at too high a figure. They now proposed to issue them at £1 discount, and he hoped the shareholders would feel such confidence in the company that they would be willing to come forward and accept the numbers allotted to them. He was willing for his part to do more than his share, and he did not think, looking at the favourable position in which the company now stood, there ought to be the slightest difficulty in getting the whole taken up.

Mr. RHODES seconded the motion.

Mr. SLOUS thought the price at which the new shares were to be issued was rather high, and that the directors would not succeed in their object unless they took the subscriptions subject to the money being returned if the whole number of the shares was not subscribed for. If that were laid down as a condition he would be willing to take more than his proportion. From what he could see of the working at Trapani and Marsala, he congratulated the shareholders that the company had not Bari added to their difficulties.

A PROPRIETOR said he observed by the general balance-sheet an item of "Bills payable, £9361," in addition to "Sundry creditors, £2451." He should like to be informed how the money to be raised by the new shares was to be appropriated—whether in payment of debts or in extensions.

The CHAIRMAN: We have extensions to make which will amount to £3000 or £4000.

The SECRETARY: You will see that on the other side of the account there are "Bills receivable, £1337," and "Cash, £1033."

The PROPRIETOR: Assuming that we raise £12,000, I want to know how we are going to spend that £12,000—whether in payment of debts or in extensions.

The SECRETARY: About £3000 or £4000 of the money will be laid out in extensions; the rest will be applied to the liquidation of debts.

A PROPRIETOR: Assuming that the shares about to be issued are not applied for, and a further issue should take place at a still greater depreciation, will those shares be offered to existing proprietors in priority of the public?

Mr. LYSLEY: If I might venture to express an opinion, I would say that I think it would be extremely injudicious for the directors to pledge themselves to any reduction below £4.

The CHAIRMAN said there was a great difficulty in confining themselves to any particular form of issuing the shares, and with regard to any future issue, the directors could not pledge themselves to give the shareholders priority, because a future general meeting might not agree to such a proposal. He did not know whether it would meet Mr. Slous's view to say that if not more than half the number were subscribed for the money should be returned.

Mr. SLOUS said he presumed the directors had power to issue debentures for the balance. If so, he should have no objection.

Mr. CROSSLEY thought it was a question whether the new issue of shares would not alter the position of the company in that respect.

Mr. W. G. LYSLEY thought the power to issue debentures would be stopped by the issue of the shares to that amount.

Mr. RHODES urged that each shareholder should boldly come forward and assist the directors, and said he should be glad to take more than his proportion of the new shares.

Mr. SLOUS: Do I understand that unless the £15,000 is all subscribed for the money will be returned?

The CHAIRMAN: Yes. That is a distinct understanding.

The motion for the adoption of the report was put and carried.

It was then resolved—"That a dividend at the rate of 7 per cent. per annum be declared upon the preference shares, for the year ending March 31, 1868, deducting the amount already paid on account, and that a dividend at the rate of 5 per cent. for the same period be payable upon the ordinary capital of the company."

The retiring directors and auditors were re-elected, and the remuneration of the latter for the past year was fixed at 20 guineas each.

On the motion of Mr. RHODES, seconded by Mr. SLOUS, a vote of thanks was given to the chairman and directors.

The CHAIRMAN briefly acknowledged the compliment, and the proceedings terminated.

GAS AT ST. IVES.—At the last meeting of the St. Ives Improvement Commissioners the supply of gas formed one of the subjects discussed. The present contract with Mr. Bower having but a short time to run, the clerk had written to Mr. Bower, the owner of the gas-works, to enter into a fresh contract; but this he declined to do before the old one was complete, and as to

Share List of Metropolitan Gas Companies.

Number of Shares issued.	Amount per Share.	Name of Company.	Amount paid up p. Share.	Dividend p. Cent. p. Annum.	Price per Share.
	£		£ s. d.	£ s. d.	£
8000	10	Anglo-Romano	10 0 0	10 0 0	11 — 12
5000	20	Bahia (Limited)	20 0 0	3 0 0	14 — 15
1000	20	Do., preference	20 0 0	10 0 0	20 — 22
750	20	Do., do., redeemable	10 0 0	10 0 0	.. — 12½
40000	5	Bombay (Limited)	5 0 0	5 0 0	4¼— 4¾
10000	5	Do., third issue	3 0 0	5 0 0	2¼— 2½
10000	20	British (Limited) (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton [Potteries], Trowbge., & Holywell.)	20 0 0	6 0 0	28 — 29
12000	50	*Chartered*	50 0 0	7 0 0	46 — 47
6000	50	Do.	40 0 0	7 0 0	36 — 37
10000	20	*City of London*, A shares	20 0 0	9 0 0	22 — 24
10000	10	Do., B shares	10 0 0	4 0 0	6 — 6½
9629	10	Do., new shares	10 0 0	9 0 0	11 — 12
25000	25	City of Moscow (Limited)	25 0 0	nil.	4¼— 5¼
17490	25	*Commercial*	25 0 0	10 0 0	32 — 33
20000	20	Continental Union	20 0 0	4 0 0	14 — 15
10000	20	Do., preference	20 0 0	7 0 0	20 — 20¼
5000	10	*Crystal Palace District*	10 0 0	10 0 0	13½— 14
5000	10	Do., preference	10 0 0	6 0 0	12½— 13
10000	10	Do., new shares	2 10 0	7 0 0	2½— 3
4000	50	*Equitable*	50 0 0	10 0 0	64 — 66
4000	25	Do., new shares	25 0 0	10 0 0	32 — 33
23406	10	European (Limited)	10 0 0	10 0 0	13½— 14
12000	10	Do., new shares (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	10 0 0	7 — 7¼
20000	10	*Great Central Gas Consumers*	10 0 0	10 0 0	13 — 13½
5000	10	Hong Kong (Limited)	10 0 0	5 0 0	8 — 10
26000	50	*Imperial*	50 0 0	10 0 0	64 — 64½
1300	100	Do., bonds	£100	10 0 0	170 —175
28000	50	*Imperial Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Stolberg, Toulouse, & Vienna.)	43 15 0	16 0 0	98 — 99
400	100	Imperial Mexican (Limited)	100 0 0	nil.	
200	100	Do., new	100 0 0	nil.	

Number of Shares issued.	Amount per Share.	Name of Company.	Amount paid up p. Share.	Dividend p. Cent. p. Annum.	Price per Share.
	£		£ s. d.	£ s. d.	£
3000	40	*Independent*	40 0 0	10 0 0	52 — 53
3000	10	Do.	10 0 0	5 0 0	7 — 9
3000	20	Do.	12 10 0	7 10 0	13 — 14
7133	50	*London*	50 0 0	10 0 0	63 — 64
5610	25	Do., 1st preference	25 0 0	6 0 0	26 — 27
503	50	Do., 2nd preference	50 0 0	6 0 0	
214	50	Do., 3rd preference	50 0 0	6 0 0	
£18781		Do., 1st preference stock		6 0 0	
£11828		Do., 2nd preference stock		5 0 0	
12000	5	Malta and Mediterranean (Limited)	5 0 0	5 0 0	3¾— 4
6000	5	Do., preference	5 0 0	7 0 0	.. — 5
30000	5	Oriental (Calcutta)	5 0 0	9 0 0	6¼— 7
30000	5	Do., new shares	1 0 0	9 0 0	1¼— 1⅝
10000	5	Ottoman (Limited)	5 0 0	nil.	1¾— 2¼
10000	10	Pará (Limited)	10 0 0	6 0 0	8¼— 9
27000	20	*Phœnix*	20 0 0	10 0 0	27 — 27½
3600	100	Do., new	35 0 0	7 10 0	35½— 36½
144000	Sk.	Do.	100 0 0	5 0 0	72 — 73
5000	20	*Rateliff*	20 0 0	10 0 0	22½— 23
	20	Rio de Janeiro (Limited)	20 0 0	10 0 0	23 — 25
6959	5	Singapore (Limited)	5 0 0	3 0 0	
2000	5	Do., preference	5 0 0	7 10 0	
		Shanghai			
4800	50	*South Metropolitan*	50 0 0	10 0 0	67 — 68
	12½	Do., new shares	12 10 0	10 0 0	17¼— 18
15000	10	*Surrey Consumers*	10 0 0	10 0 0	12¼— 13
10000	10	Do., new	6 0 0	10 0 0	7½— 8
9000	5	United General (Limerick)	5 0 0		2 — 2½
10000	10	*Victoria Docks*	5 0 0	6 0 0	
1500	10	*Wandsworth and Putney*	10 0 0	10 0 0	.. — 10
2989	10	Do.	10 0 0	7 10 0	
316	10	Do.	6 10 0	7 10 0	
1128	10	Do.	3 0 0	7 10 0	
20000	10	Western (Limited) A shares	10 0 0	10 0 0	13¾— 14
10000	10	Do., B shares	6 0 0	10 0 0	8 — 8½
10000	10	Do., C shares	6 0 0	10 0 0	8 — 8½
20000	10	Do., D shares	1 0 0	10 0 0	1½— 2
8000	5	*West Ham*	5 0 0	7 10 0	.. — 7½
6000	5	Do., new shares	5 0 0	7 10 0	.. — 7½
551	10	West London Junction (Limited)	10 0 0	6 0 0	
520	10	Do., preference	10 0 0	6 0 0	

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1½ in.	2 in.	2½ in.	3 in	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	29	33	51	70	89	107	126	149	177	208 lb

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle	Wales.	Yorkshire, Derbyshire, and Staffordshire.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Pig Iron, No. 1 (g.m.b.)	3 12 6	2 11 10½	2 7 6	3 5 0	3 5 0
1¼ and 2-inch Socket-pipes	7 10 0	6 0 0	6 15 0	6 15 0	7 10 0
2½ and 3-inch ditto	7 0 0	6 0 0	6 5 0	6 10 0	7 0 0
4 and 5-inch ditto	6 10 0	5 10 0	5 15 0	6 0 0	6 10 0
6 inches and upwards ditto	6 5 0	5 0 0	5 10 0	5 15 0	6 5 0
Retorts, 1st fusion, hot blast	6 0 0	—	5 5 0	5 10 0	6 0 0
Ditto, 2nd ditto, cold ditto	7 0 0	5 15 0	5 15 0	6 0 0	7 0 0
Tank-plates, ¼ thick and above	6 10 0	5 10 0	5 10 0	5 15 0	6 5 0

WROUGHT-IRON TUBING,

Subject to 50 per cent. Discount.

	2 in.	1½ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 feet—per foot	1 8	1 0	0 10	0 7	0 5	0 4½
Ditto ditto, from 6 inches to 18 inches—each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting-pieces, or Long Screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, Springs, and Elbows (wrought iron)	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, ditto	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain Sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 3-quart	15 0	14 0	13 6	13 0	12 0	—

GAS COALS.—*Per Ton.*

Newcastle.—Unscreened:—	
Haswells, Nettlesworth Primrose, and South Pelaw	6s. 6d.
Felling, Framwell Gate, North Pelton, Redheugh Main, Walker's Primrose, West Wear, and Whitwell Primrose	6 9
Burnhope, Craghead, Charlaw, Derwent, East Castle, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Lanchester Pelaw, Medomsley, Mickley, New Pelaw, Pelaw Main, Ravensworth, Seaham, South Moor Pelton, South Leverson, Townley Main, Tyne Main, West Pelaw, Wearmouth Hutton, and Witton	7 0
Pearth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton	7 3
Brancepeth, Dean's Primrose, Londonderry Gas, New Pelton, Pelton, South Peareth, Stella, Urpeth, Washington Hutton, and West Leverson	7 6
Ramsay's Newcastle Cannel	15 0
Wigan Cannel (at Liverpool)	17 0
Scotch Cannel:—	
Boghead (at Leith)	42 6
Muirkirk	27 0
Kirkness, best (at Burntisland)	28 6
Capeldrae, 1st quality (at ditto)	28 6
Ditto, 2nd ditto (at ditto)	18 6
Cowdenbeath	12 0
Lesmahago (at Glasgow)	31 6
Ditto (at Granton)	32 6
Arniston	27 6
Wemyss	27 6
Haywood, Wilsontown (at Granton)	23 0
Pirnie, or Methill	17 0
Lothian's Cannel (at Leith)	28 0
Myles' Cannel	23 6
Lochore Parrot (at Burntisland)	28 0
Lanemark (at Glasgow)	16 0
Elphinstone Tower (at Leith)	20 0

FREIGHTS.

Coastwise—Newcastle.—Per Ton:—	
Chatham and Rochester	5s. 6d. to 5 7½
Cork	7s. 6d. to 8 0
Dover, Folkestne, & Ramsgate	5 6
Dublin	8s. to 8 6
Exeter Quay	7 6
Ipswich	4 6
London (from Leith)	7s. 6d. to 8 0
London (Pool)	6 0
Lowestoft and Yarmouth	4 6
Portsmouth & Southampton	6 6
Plymouth	6s. 9d. to 7 3
Shoreham	6 6
Whitstable	5 6
Weymouth	6 6
Foreign.—Per Keel:—	
Barcelona	£18 0
Bordeaux	—
Boulogne and Calais	£6 to 6 5
Cadiz	14 0
Cronstadt	—
Copenhagen	9 5
Genoa	17 0
Hamburg	8 0
Havre de Grace	7 10
Leghorn	16 10
Lisbon	13 10
Rotterdam	7 5
Stettin	10 5
Trieste	16 10
Venice	18 0

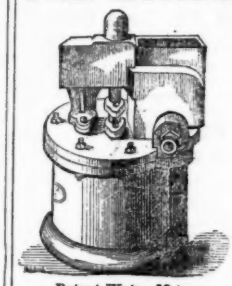
SUNDRIES.

Best Natlc. Fire-bks., p. 1000, £2 10s. to £2	15 0
Cliff's Fire-bks. (at Wortley), p. 1000	2 15 6
Ingham's ditto (at Wortley), p. 1000	2 15 0
Fire-clay Retorts, p. ft. run, 5s. 6d. to	0 7 0
Tough Cake Copper, p. ton	81 0 0
English Pig Lead, p. ton	19 7 6
Welsh Bar Iron (in London), p. ton	6 5 0
Foreign Spelter, p. ton	20 7 6
English Block Tin, p. ton	96 0 0
Banca, p. ton	94 0 0
Tarred Rope Yarn, p. cwt.	1 0 0

the price, which to private consumers was considered somewhat too much, being 6s. 8d. per 1000, he in a letter, rather more expressive than polite, informed them that most likely a slight difference would be made to private consumers, but it was hinted that very probably the public lamps would be somewhat higher. After the question had been some time discussed, a motion by Mr. Kenward was unanimously carried that advertisements should be inserted in the local and other newspapers inviting tenders for supplying the town with gas. Objection was taken to the tone of Mr. Bower's letter, and the feeling of the meeting was that the townspeople should be protected; and one of the commissioners stated that were the board to erect gas-works, a person would guarantee the payment of 7½ per cent. for them, and make the gas at a considerably cheaper rate.

Advertisements.

THE LONDON & WESTMINSTER METER COMPANY, LIMITED.



Patent Water-Meter.

(SUCCESSORS to THOS. EDGE, Jr., & CO.)

PATENTEES AND SOLE MANUFACTURERS OF

THE ABC GAS-METER.

EDGE'S PATENT INDEX.

PATENT WATER-METER (a Cylinder and Piston).

The ABC GAS-METER shows in plain figures the money payable for Gas consumed, as well as the number of cubic feet.

ABC Gas-Meter.

The WATER-METER is accurate in measurement, simple in action, and moderate in price.

Manufacturers of the ordinary Wet and Dry Meters, Governors, Photometers, and all other Gas and Water Apparatus.

JOHNSON'S PLACE, LUPUS STREET, LONDON, S.W.

CITY OFFICE: 2, CASTLE COURT, BIRCHIN LANE, E.C.

JOHN VICKARY,

GAS ENGINEER AND CONTRACTOR, IRON AND BRASS FOUNDER,

WORKS—EXE ISLAND, EXETER,

Tenders his best thanks to the various Gas Companies in **England, Ireland, and Wales,** for the very liberal and kind support he has received for the last **22 years,** during which period he has erected and extended above **200 Gas-Works.**

In addition to the numerous towns wherein he has been engaged, he begs reference to the following testimonial:—

Plymouth and Stonehouse Gaslight and Coke Company.

Sir,—I have much pleasure in testifying that the 100-foot Telescope Gasholder and Cast-Iron Tank, erected by you for this Company in 1862, has given the highest satisfaction, and never required the slightest attention or adjustment since its completion.

(Signed) PETER ADAMS, Chairman.

He has also erected a 100-foot Gasholder and Cast-Iron Tank at **Exeter;** an 80-foot Telescope Gasholder and Iron Tank at **Devonport;** a 90-foot at **Torquay,** &c. &c. At either of those works satisfactory references can be made.

He also begs particular attention to his **Improved Gas-Meters,** either **Wet, Dry, or Compensating,** the materials and workmanship of which guaranteed of the very best description, and which has gained for his Meters so excellent a reputation for these last **20 years.**

RETORTS, DIP & ASCENSION PIPES, HYDRAULIC MAIN, CONDENSERS, PURIFIERS, STATION-METERS, GOVERNORS, VALVES, and GASHOLDERS,

Of any size, and every description of article required in Gas-Works.

Mains, Tees, Connexions, and Syphons, from 2 to 12 in., always in stock, and supplied at Scotch prices.

Clay Retorts and Fire-Goods of every description.

Gas-Fittings of the most modern designs.

Iron Pipe and Fittings, Service Cocks, &c.

Plans, Specifications, and Estimate for the erection of New Gas-Works of any size furnished.

ROBERT MACLAREN and CO., EGLINTON FOUNDRY, GLASGOW, Manufacturers of all sizes of Cast-Iron Main Pipes, by an improved Patent. General Ironfounders, Gas Engineers, and Wrought-Iron Tube Makers.

FIRE-CLAY GAS-RETORTS, &c., CANNEL AND STEAM COALS.

WILLIAM FRASER, Inverkeithing (owner of the Works at which Fire-clay Retorts were first made), having greatly enlarged his works, can supply retorts and other fire-clay goods to any extent. References can be given to managers of above a hundred Gas-Works whom he supplies.

WILLIAM FRASER ships COWDENBEATH PARROT COALS at Charlestown and Burntisland at 12s. per ton; and HALBEATH STEAM COALS, on Navy List, at 8s. 6d. per ton.

B. CARPENTER'S

IMPROVED

WOOD SIEVES FOR GAS PURIFIERS.

WORKS:

14, JOHN STREET, PENTONVILLE ROAD,

LONDON, N.

The above Sieves are used by the principal Gas Companies in London and the country. Their utility, durability, and cheapness combined, render them superior to all others.

Testimonials from Gas Engineers who have tested their qualities forwarded on application.

All orders punctually attended to, and estimates given if required.

POPE & PEARSON'S Gas Coal.—We beg to call the attention of all Gas Companies to this important winning, at a depth of 1275 feet. The yield of gas is more than 10,000 cubic feet per ton, with an illuminating power of 20 spermaceti candles, producing 12¼ cwt. of coke per ton. The Coals are now being used by the Gas Companies in London. One Engineer, after trial, gives the following results:—

10,000	cubic feet per ton, and	19·13	candles.
11,468	,, ,,	16·57	,,
12,000	,, ,,	15·42	,,
13,260	,, ,,	15·00	,,

This valuable Coal can be delivered in London within 1s. per ton of the ordinary Newcastle Gas Coal; can be shipped at the ports of Hull and Goole, or by railway to any station.

For further particulars, apply to POPE AND PEARSON, West Riding and Silkstone Collieries, near Leeds, YORKSHIRE.

WANTED, a re-engagement as MANAGER of a small gas-work, or Gas-Fitter to a large work. Four years in present situation. Good references if required.

Address Mr. G. BROWN, Gas-Works, French, near Wellington, SALOP.

TO GAS COMPANIES.

WANTED, a situation as Main and Service Layer, or Working Manager of a gas-work. Can have the highest testimonials for character and ability from present and former employers.

Address A. B. C., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

THE Advertiser wishes to obtain a situation as MANAGER of a gas-work. He has had considerable experience in the formation of gas companies and the erection and management of gas-works, and would undertake either the engineering or the whole of the management, including the book-keeping. Good testimonials and references.

Apply R. T., Post-Office, BRENTFORD, W.

TO GAS COMPANIES.

A Manager of 15 years experience is desirous of a re-engagement in a similar capacity, or as Manager and Secretary.

Address X., Messrs. Marlborough and Co., Ave Maria Lane, LONDON.

WANTED, a good second-hand STATION-METER, capable of passing from 1000 to 1200 feet of gas per hour.

Apply to Mr. PARTINGTON, Gas Company, ST. ASAPH.

TO GAS ENGINEERS & CONTRACTORS.

TENDERS are required by the Haddenham Gas Company, Limited, for the erection of GAS-WORKS at Haddenham, Cambridgeshire, with the cottage and buildings, as per drawings by D. Oldfield, C.E.

1st Tender.—For buildings, consisting of a retort-house, coal-store, purifying-shed, lime-store, meter and governor house, workshop, cottage, &c.; gasholder tank, tar-tank, and fresh water cistern, with all works to complete the same.

2nd Tender.—For four retorts, to include the proper setting, and the erection of retort-beds, and flues leading to chimney, condenser, scrubber, purifiers, gasholder, station-meter, governor, and all pipes necessary in the works, with about a mile and a quarter of street-mains.

The plans and specifications may be seen at the Offices of the Solicitor to the Company, EDWIN CROSS, Minster Place, ELY, or at the Offices of DAVID OLDFIELD, 7, Westminster Chambers, LONDON.

Tenders are to be sent not later than Saturday, the 27th day of June, to the said Edwin Cross.

N.B.—The lowest or any tender will not necessarily be accepted.

THE Directors of the Chatteris Gas and Coke Company, Limited, are prepared to receive TENDERS for 250 tons of GAS COAL, to be delivered at Chatteris Station—150 tons in the month of July next, and 100 in the month of September, 1868. The Coals to be as free from sulphur as possible, and quite free from bats, slack, and other refuse.

Tenders to be sent in on or before the 30th of June.

Address to A. SWABEY, Manager, Gas-Works, Chatteris, CAMBRIDGESHIRE.

June 15, 1868.

CANNEL COAL.—The West York-shire Iron and Coal Company, Limited, beg to draw the attention of Gas Companies to their Cannel, of which the following is the analysis made by W. Huggon, Esq., F.C.S.:—

Yield of gas per ton	10,296 cubic feet.
Illuminating power rather over	21 sperm candles.
Yield of coke per ton . . .	12 cwt.

COLLIERIES—WEST ARDSLEY, near LEEDS.

For further particulars, address to the Office of the Company, 15, York Place, LEEDS.

TO GAS AND WATER COMPANIES.

SECOND-HAND

FIRE AND BURGLAR PROOF

SAFES.

BEFORE PURCHASING SEND FOR

GRIFFITHS' MONTHLY LIST OF SAFES,

By Milner, Marr, Thos. Perry and Sons, Mordan, Price, Whitfield, and every eminent maker, at about half the price of new.

A guarantee given with each.

A large quantity of TANN'S SAFES from £2 10s.

Apply to GRIFFITHS, 43, CANNON STREET, E.C.

OXIDE OF IRON,

We are prepared to supply, on moderate terms,

HYDRATED PEROXIDE OF IRON (BOG OCHRE),

Same quality as supplied by us to several of the most extensive Gas Companies, and which has given entire satisfaction.

FRANCIS RITCHIE & SONS,

BELFAST.

TO BE SOLD, a set of Four Purifiers, each 8 ft. long, 6 ft. wide, and 3 ft. 5 in. deep, with hydraulic cast-iron centre-valve, covers, and wrought-iron sieves, crane for lifting lids, and connexions complete, now in work at Walsall Gas-Works. Price £80, to be paid before the removal of the Purifiers. The Commissioners will disconnect them, but the purchaser will have to take to pieces and remove them.

Applications to be addressed to Mr. WILKINSON, Clerk to the Commissioners, WALSALL.

Walsall, June 16, 1868.

TO ENGINEERS, CONTRACTORS, BUILDERS, &c.

TO BE SOLD, by the Wandsworth and Putney Gaslight and Coke Company, a 6-horse power, portable, direct action STEAM-ENGINE, with brass fittings and multitubular boiler, &c., complete.

Also a Woodforde's patent CENTRIFUGAL PUMP, capable of throwing 30,000 gallons per hour, with 54 ft. of 4-in. rising main, and 27 ft. of framing and shafting.

The Engine and Pump are in excellent condition, and are sold in consequence of the Company having no further use for them.

Also to be sold, a D-shaped cast-iron HYDRAULIC MAIN, 25 ft. long by 16 in. deep, bored for 3-in. dip-pipes.

Also a quantity of H and DIP PIPES.

For further particulars and to view, apply to the Company's Engineer, Mr. H. E. Jones, Gas-Works, Wandsworth. By order,

ALFRED LASS, Secretary.

High Street, Wandsworth, June 17, 1868.

GAS EXHAUSTERS FOR SALE.— 4 Beales Exhausters, 21 in. diameter, for 7-in connexions.

2 single-pump double-acting Exhausters, 21 in. diameter by 24-in stroke, without engines.

2 double-pump double-acting Exhausters, 17 in. diameter by 24-in. stroke, without engines.

The above are all in good order, having only been removed to make way for larger Exhausters, and will be sold cheap.

Apply to HANNA, DONALD, & WILSON, 9, Fenchurch Street, LONDON; and Abbey Works, PAISLEY, where they can be seen.

RETORT Fittings for Sale, consisting of 15 in. Round Mouthpieces, with wrought lids and cross-bars; 5 in. to 4 in. and 5 in. to 3 in. Ascension-Pipes; 4 in. and 3 in. H and Dip-Pipes; 12 in. D Hydraulic Mains; wrought and cast Buckstaves; 12½ D Retorts, &c., &c., all in excellent condition.

Full particulars, and tracings showing all dimensions, sent on application to SAMUEL CUTLER AND SON, Millwall, LONDON.

CROYDON COMMERCIAL GAS AND COKE COMPANY.

TO BE SOLD, in consequence of the completion of the Company's New Works—

A cast-iron TANK, 51 ft. 8 in. diameter, 20 ft. deep, with inlet and outlet pipes, valves, columns, girders, gasholder, carriages, &c., complete.

A Telescope GASHOLDER, 40 ft. diameter, with columns, girders, carriages, inlet and outlet pipes, valves, &c., &c.

A cast-iron TANK, 30 ft. diameter, 15 ft. deep, with columns, inlet and outlet pipes, valves, &c.

A CONDENSER-BOX, 24 ft. by 6 ft. by 3 ft. 6 in., with twenty-eight 8-in. pipes, &c., &c., complete.

A STATION-METER, to pass 5000 feet per hour, with connexions, &c., complete.

A GOVERNOR, complete, with delivery box, 3 valves, and connexions complete.

2 Burton and Co.'s VERTICAL ENGINES, 5-horse nominal power; and 2 of Beales' EXHAUSTERS for 10,000 ft. each per hour.

Retorts and other Castings, Valves, &c.

Applications to be made to the Secretary, at the Offices, 23, George Street, CROYDON.

WILLIAM PURVIS, Secretary.

ABOUT 100 tons of spent Oxide for SALE at the Oxford Gas-Works.

Apply to Mr. C. HENWOOD, Engineer.

GASHOLDER FOR SALE.

THE Worcester Gas Company, to make room for alterations in their works, offer FOR SALE a Three-lift GASHOLDER, about 48 ft. diameter by about 36 ft. working height, including nine pillars and their girders and trussings, tank and pillar guides, brackets and bracket rollers, chains and counterbalance weights, centre tube, and guide-rod, complete and in working order.

The Gasholder can be seen on the Company's works, and further information obtained from Mr. J. DEAKES, Manager, on the Works, or from W. ESSON, Engineer, Ness House, CHELTENHAM.

Gas-Works, Worcester, June 8, 1868.

TO GAS COMPANIES.

WESTPHALIAN GAS COAL, yielding 10,000 cubic feet of 18-candle gas, and good COKE, can be supplied at 19s. per ton, ex ship in Thames, by WARNER, WALDUCK, and Co., 11, OLD JEWRY CHAMBERS, E.C.

Sole Agents in England for Hamilton, Dullens, & Co.

GANISTER.—This valuable material which is found to be the best adapted for the lining of furnaces and cupolas in refineries, glass and chemical works, and GANISTER CEMENT for gas-works, specially prepared for setting and patching retorts, can be supplied in any quantity by WARNER, WALDUCK, and Co., No. 11, Old Jewry Chambers, LONDON, E.C.

THE

BRITISH IRON TUBE COMPANY,

MANUFACTURERS OF

PATENT WELDED WROUGHT-IRON TUBES & FITTINGS,

For Gas, Steam, and Water;

SCREWING TACKLE, CORE BARS,

Hydraulic and other Tubes and Coils, to order.

WORKS, WAREHOUSE, & OFFICES:

28, CHARLOTTE STREET, BIRMINGHAM.

AGENTS IN LONDON:

D. W. OGG AND CO., 3, JEFFREY'S SQUARE, ST. MARY AXE.

D. W. OGG and CO. have lately engaged to represent one of the largest shippers of Scotch Cannels at prices that cannot fail to command the attention of Gas Companies at a period like the present, when quality of gas seems so desirable.

Offices, 3, Jeffrey's Square, St. Mary Axe, LONDON.

BEST & HOLDEN'S

PATENTS FOR CHARGING AND DRAWING GAS-RETORTS,

WITH CHAMBERS FOR MOUTHS,

REQUIRING NO LUTING.

Gas Engineers are solicited to examine into the merits of this invention before erecting new or altering old retort-houses. It may be seen in action at the Alliance Gas Company's Works, Dublin, where its utility and economy will be clearly demonstrated. Although the saving in labour will be considerable, and quickly return any outlay of capital, there are other and important features strongly recommending its adoption at all gas-works, and which a gas engineer upon examination will at once appreciate.

The Directors of the Alliance Gas Company have kindly consented to give every facility to gentlemen desirous of seeing the invention in operation. Parties, therefore, about to visit Dublin will be so good as to send us their card, and we will furnish them with letters of introduction.

Drawings, &c., may be seen at our Office, and all details explained.

JOHN CRISHOLM, SON, & Co., 44, MARK LANE, E.C.

FRASER'S PATENT RIBBED RETORTS.

These Retorts are now used at more than 60 Gas-Works, and continue to give satisfaction.

The Iron Retort is recommended for great durability. The Clay Ovens and Retorts obtain a more speedy and perfect carbonization of the Coal.

To ensure the excellence of the Brick Ovens and Fire-Clay Retorts, the Patentee has made arrangements with the following makers for their supply:—

Messrs. J. CLIFF & SON, Wortley, near Leeds.
E. BAKER & Co., Stourbridge.
W. COCHRANE CARR, Newcastle-on-Tyne.
W. FRASER, Inverkeithing, N.B.

Full particulars, with illustrated circular, testimonials, and prices, will be forwarded on application to A. C. FRASER, Gas-Works, COLCHESTER.

STOURBRIDGE FIRE-CLAY WORKS.

E. BAKER & CO.,

24 WHARF, HARROW ROAD, PADDINGTON, W.

FIRE-BRICKS, LUMPS, SQUARES, and TILES of all dimensions.

GAS-RETORTS always in stock.

GARDEN EDGINGS of various patterns.

ORNAMENTAL BUILDING BRICKS.

GRATE BACKS in various designs.

Contracts entered into to set Retorts, erect Furnaces, &c.

Shipments on the shortest notice.

Makers of A. C. FRASER'S Patent Ribbed Retorts and Brick Ovens.

TO GAS ENGINEERS AND FITTERS.

Every Description of

GAS LANTERNS & REFLECTOR LAMPS

For Shop Windows kept in Stock.

W. DAVIS, 17, Wells Street, Oxford Street, LONDON, W.

Established 1820.

CATHELS'S Patent Dry District GOVERNOR is the only perfect self-acting contrivance for regulating the pressures in the higher levels of a district.

CATHELS'S Patent Four-way Disc GAS-VALVE—ONE OF WHICH SERVES AS THREE ORDINARY VALVES—is the best Valve for gas-works.

For prices, &c., apply to the Manufacturers, Messrs. GUEST AND CHRIMES, ROTHERHAM.

CATHELS'S Patent Ribbed Gas Main- PIPES cost but about 1d. to 2d. per yard (depending on the size) more than Plain Pipes, and ensure PERFECT GAS-TIGHT CONNEXIONS with the Service-Pipes.

Apply to Messrs. BEGGS & SON, 37, Southampton Street, Strand, LONDON.

OLD WEMYSS CANNEL COAL.— Yield of gas per ton, 12,896 cubic feet; illuminating power, 31·75 standard candles. Port of shipment, Wemyss.

Analysis and price on application to Mr. WM. CAREY, Manager, Wemyss Colliery, Kirkcaldy, FIFE.

INVERKEITHING FIRE-CLAY WORKS.

WILLIAM FRASER,

Having recently greatly enlarged these Works, can undertake

CONTRACTS AT LOW PRICES TO ANY EXTENT.

FIRE-CLAY RETORTS WERE FIRST MADE AT HIS WORKS,

And to this Department great attention is paid. Wherever used they have given satisfaction.
He invites attention to the following certificates.

TESTIMONIALS BY SOME OF WM. FRASER'S CUSTOMERS.

I.—*The late* F. LYON, *Esq., Manager and Engineer of the Edinburgh and Leith Gas-Works.*

Edinburgh and Leith Gaslight Company, Edinburgh, March 13, 1855.

Dear Sir,—In reply to yours of the 10th inst., I have to state that we have used Fire-Clay Retorts, made at the Inverkeithing Works, for twenty-five years. For upwards of ten years, I may say, we used them exclusively, and found them give satisfaction. For the last fifteen years we have been getting a part of our clay retorts from other makers. We find yours to stand better than some, and equal to any we have yet tried.—I am, &c., FRAS. LYON.
Wm. Fraser, Esq., Inverkeithing.

II.—JOHN REID, *Esq., Engineer and Manager of the Edinburgh and Leith Gaslight Company.*

Leith, Jan. 29, 1867.

Dear Sir,—In compliance with your request, I hereby certify that I have employed Fire-Clay Retorts of your manufacture, both here and elsewhere, for upwards of twenty-four years, with much satisfaction. I find them capable of sustaining the highest working temperature, under which they last as well as any I have seen used. They are possessed of a special quality, by which the carbon which accumulates inside is very easily removable, without injury to the Retort itself; and the style of workmanship and finish is all that can be desired. I have no objection to your making use of this testimony, so far as you may think it useful in promoting your business elsewhere.—I am, &c., JOHN REID, Engineer and Manager.
Wm. Fraser, Esq., Inverkeithing.

III.—J. Z. KAY, *Esq., Founder and Engineer, Glasgow.*

Phœnix Iron-Works, Glasgow, Oct. 30, 1867.

When I was manager and engineer of the two Gas-Works in Dundee, I used extensively Fire-Clay Retorts manufactured by Mr. Fraser, Inverkeithing. They were also generally used in other works where I acted as consulting engineer. I have pleasure in stating that I consider Mr. Fraser's Retorts to be of a very superior quality, and are not surpassed by any of which I had experience. I have often had occasion to visit his works, and observed that special attention was paid to the manufacture of Retorts, which have been made there, with manifest success, for upwards of forty years. Gaslight Companies may order these Retorts with every confidence that they will give satisfaction. J. Z. KAY.

IV.—*The Late Mr.* DOW, *Manager, Stirling Gaslight Company.*

Stirling Gaslight Company's Office, Jan. 29, 1855.

Dear Sir,—I have much pleasure in testifying to the excellence of the Fire-Clay Retorts made at the Inverkeithing Brick-Works.

I have used them constantly in the Stirling Gas-Works for upwards of eighteen years. *They last with me not less than four years. Some of them are now going the* SIXTH YEAR, and give uniform satisfaction.

From their greater durability, I prefer them to all other retorts I have tried, made by other celebrated makers.

I use those of the circular form, 14 inches diameter and nearly 4 inches thick, 9 feet long, and made in two pieces. Some approve of thinner retorts, and in one piece, but I find that kind suits me best, and order them so accordingly.

I have every confidence in recommending the Inverkeithing Retorts and other fire-clay articles manufactured there.—I am, &c., JOHN DOW, Manager.
Wm. Fraser, Esq., Inverkeithing.

V.—*Messrs.* R. TULLIS & CO, *Auchmuty and Rothes Paper-Mills.*

Auchmuty and Rothes Paper-Mills, Jan. 29, 1866.

We have used Fire-Clay Retorts, got from Inverkeithing, in our Gas-Works for the period of twenty years; and having found them to be of a quality uniformly good, we can confidently recommend them to others, believing them to be the best in the market. R. TULLIS & CO.

VI.—JOHN ROBERTSON, *Esq., Manager, Kinross and Milnathort Gas-Works.*

Kinross and Milnathort Gas-Works, Jan. 29, 1867.

I feel happy at having the privilege to adhibit my name to the certificate in favour of your articles. In regard to the Retorts and other materials manufactured at your works, I can bear ample testimony to their superiority, as I have had the practical experience of working them for the last twenty-seven years.
Mr. Fraser, Inverkeithing. JOHN ROBERTSON, Manager.

VII.—GEORGE AITKEN, *Esq., late Manager of Dalkeith Gas-Works.*

Dalkeith Gas-Works, Aug. 15, 1848.

I intend to be over in the course of a few days to order some more Retorts. You will, perhaps, be surprised to learn that some I got formerly have gone four years, and are still in good condition. They might go longer, with some repair, but I think it better not to risk them.
Mr. Fraser, Inverkeithing. GEORGE AITKEN.

VIII.—A. M'PHERSON, *Esq., Manager, Perth New Gas-Works.*

Your Retorts in one piece give entire satisfaction.
Mr. Fraser, Inverkeithing. A. M'PHERSON, Manager.

IX.—WM. M'KENZIE, *Esq., formerly of Cupar, now of Dunfermline.*

Gas-Works, Dunfermline, Oct. 31, 1867.

Retorts and other materials made at Inverkeithing Fire-Clay Works have been used almost exclusively at these works since their establishment, nearly forty years ago. My own experience of them, here and at Cupar-Fife, extends over fourteen years. These Retorts have invariably given me great satisfaction. They last well, and are quite equal if not superior in every respect to any others which I have used.
WM. M'KENZIE, Manager.

X.—WILLIAM HISLOP, *Esq., Manager of Falkirk Joint-Stock Gas-Works.*

Joint-Stock Gas-Works, Falkirk, March 22, 1854.

The Retorts which we got from you in November, '52, have been cooled down three times, and are still almost as good as that day they were put on.
WILLIAM HISLOP.

XI.—ROBERT DOUGLAS, *Esq., Manager of Gas-Works, Newcastle-on-Tyne.*

Newcastle-on-Tyne Gas-Works, Nov. 12, 1867.

Fire-Clay Retorts and other materials manufactured by Mr. Fraser, Inverkeithing, were very largely used at the Bankside and Vauxhall Stations of the Phœnix Gaslight Company for ten years, when I was superintendent at these stations. I used them previously, when manager of Cupar Gas-Works, Scotland. My experience of them extends to nearly thirty years. His manufactures are of so superior a quality that I can confidently recommend them. It appears to me his fire-clay is peculiarly suitable for making Retorts, and that he has benefited by his lengthened experience. In Scotland, Inverkeithing Retorts have, during forty years, justly maintained a high reputation, and are principally used on the east and centre of that kingdom. They have been introduced into various works, both in England and Scotland, where I was consulted, and always gave satisfaction. RO. DOUGLAS.

XII.—D. HUNTER, *Esq., Superintendent, Phœnix Gas-Works, Greenwich.*

Greenwich Gas-Works, Jan. 31, 1855.

I used the Inverkeithing Fire-Clay Retorts at a work in Scotland, of which I was manager for several years, and can recommend them as equal in durability to any I have yet tried. DAVID HUNTER, Superintendent.

XIII.—J. DOUGLAS, *Esq., Superintendent and Secretary, Portsea Island Gaslight Company.*

Gas-Works, Portsea, Nov. 12, 1867.

I have pleasure in stating that Mr. Fraser's Retorts have been used three years on these works; that I have also had experience of them in other places; that I find them carefully made and well burned; that, from the nature of the material and the manufacture, they are durable and easily heated; and that, while I rank them equal to any, I consider them superior to most that I have tried.
J. DOUGLAS, Superintendent and Secretary,
Portsea Island Gaslight Co.

XIV.—*Certificate by Managers and Secretaries of various Gas-Works, in* 1855.

Retorts and other materials manufactured at Inverkeithing Fire-Clay Works have been used in our Gas-Works for the period annexed to our names, and have given every satisfaction. We can confidently recommend them. We believe these Retorts are not surpassed by those manufactured at any other works. They generally last two, but sometimes three years.

Managers Names.	Gas-Works.	Number of Years used.
DAVID TAYLOR	Abernethy	2
WILLIAM GALLOWAY	Alyth	6
ALEXANDER M'EWAN	Auchterarder	8
D. KINNIMOND	Auchtermuchty	10
J. ADAMSON	Anstruther	10
J. ROSS MACVICAR, Secretary	Bridge of Allan	11
A. WATSON	Banff	10
J. G. SHEPHERD, Parish Clerk	Blairgowrie	10
JOHN ANDERSON	Bo'ness	10
JAMES BARCLAY	Brechin	10
GEORGE MYERS	Broughty Ferry	5
JOHN R. GARVIE	Burntisland	9
WM. MACKENZIE	Cupar	11
JAMES REID	Coupar-Angus	8
GEORGE BOYD	Crieff	10
MARTIN WATTS	Deanston	10
ROBERT CORTEEN	Douglas, Isle of Man	4
ABR. MALCOLM	Dumfries	1
GEORGE GORDON	Errol	2
WM. GALLOWAY	Eyemouth	6
ALEX. NIMMO, Secretary	Falkirk	12
JO. SMITH, Secretary	Falkirk Joint-Stock	6
ANGUS M'PHERSON	Forfar	14
JAMES WHITE	Ferry-Port-on-Craig	7
ROBT. RODGER, Treasurer	Falkland	10
EMANUEL & SON	Hambro Gaslight Assoc.	2
WM. STIVENS	Inverness	9
THOS. MELDRUM	Kennoway	1
JAS. TOD, Secretary	Kettle	6
WM. NORRIE	Kincardine	7
J. ROBERTSON	Kinross	15
JOHN MICHIE	Kirkcaldy	25
JOHN CUTHBERT	Kirriemuir	14
ROBT. CARLOW	Linlithgow	11
AND. CANT	Leslie	20
THOS. CARMICHAEL	Leuchars	2
JOHN DANSKIN	Leven	10
ROBERT REDDIE	Markinch	9
JOHN REID	Montrose	15
ALEX. CRAIGHEAD	Newburgh	6
L. MUNRO	Nairne	2
G. W. WILSON	Prinlaws Mills	5
THOS. WHIMSTER	Perth	28
R. FORD	Perth New Gas Compy.	8
R. MORTLAND	Stranraer	9
DAVID LISTER	Strathmiglo	9
JOHN DOW	Stirling	22
J. MACFARLANE	Thurso	7
DAVID HUNTER	Tullibody	9

LIVESEY FIRE-CLAY WORKS,
NEAR BLACKBURN, LANCASHIRE.

ORLANDO BROTHERS,

MANUFACTURER OF PATENT CLAY RETORTS,
AND EVERY DESCRIPTION OF
TUBULAR GLAZED SEWERAGE PIPES, BENDS, JUNCTIONS, ETC.
FIRE-BRICKS, TILES, BLOCKS, AND CHIMNEY-TOPS.

EDWARD COCKEY & SONS,
IRON-WORKS, FROME SELWOOD,
PATENT GAS-VALVES.
A PRIZE MEDAL
WAS AWARDED TO THE PATENTEES AT THE INTERNATIONAL EXHIBITION OF 1862.

These Valves are formed of two cylinders, working one on the other horizontally, having their faces ground perfectly gas-tight.

They are adapted either as central valves, for two, three, or four purifiers—as bye-passes—or as inlet and outlet-valves for gasholders.

They have been fixed in some of the most important Gas-Works in the Kingdom, for more than eight years. Considerably over two hundred of them are now in use, and the most satisfactory reports of their advantages continue to be received. They are simple in construction, and not liable to get out of repair, and if in course of time the faces should leak, they can be easily re-ground and made as tight as ever, without removal from their positions. Each Valve is fitted with an index, which shows to the person in charge of the Works in what direction the gas is passing.

Frome, January 20, 1866.

TO CORPORATIONS, GAS ENGINEERS, AND OTHERS.

HENRY ALDER,
GRANGE METER-WORKS, EDINBURGH,
Begs to intimate that he is the ORIGINAL MANUFACTURER of
DRY GAS-METERS IN CAST-IRON CASES.
The Meters are protected by Registration on the 17th of December, 1864, under the "Copyright of Designs Act."
They are much more durable, and at the same time more easily repaired than those in Tin Cases.
PRICE LIST AND TERMS ON APPLICATION.
Agent for Ireland—Mr. J. FURNESS, 3, Fownes Street, DUBLIN.

DRY GAS-METERS IN CAST-IRON CASES,
MANUFACTURED BY
WILLIAM AND BENJAMIN COWAN,
(ESTABLISHED 1827,)
BUCCLEUCH STREET WORKS, EDINBURGH,
Possess a simplicity of construction and facility for repair greater than any yet produced, while the excellence of the material and workmanship, and accuracy of registration, cannot be surpassed. The superiority of their Dry Meters in Tin Cases is also well known.

SOLE MANUFACTURERS OF
ESSON'S PATENT COMPENSATING GAS-METERS.
COWAN'S PATENT SIDE-VALVE GAS-METERS.

GAS AND WATER PIPES.
CLARIDGE, NORTH, & CO.,
BILSTON.

THE LIQUID METER COMPANY,
LIMITED.

A. A. CROLL, Chairman. GEORGE RAIT, Managing Director.

238, KINGSLAND ROAD, LONDON, N.E.

GEORGE ANDERSON,
GAS AND CONSULTING ENGINEER,
19, NORTHUMBERLAND STREET, STRAND, W.C.

MR. ANDERSON advises Companies on all matters connected with the manufacture of Gas and the construction of Works.

PATENTEE and MANUFACTURER of the following Inventions:—

RETORT SETTINGS, heated by tar without the production of smoke.
STEAM-ENGINES and EXHAUSTERS, separately or combined.
FOUR-WAY VALVES, one of which is equal to three ordinary Valves.
STATION GOVERNORS—the Gasholder cannot tilt and cause accident.
BREEZE AND TAR FUEL MACHINE.

A Pamphlet containing Eighteen Illustrations of the foregoing, with letterpress on the construction of Works, post free, 2s. 6d.

N.B.—The second edition of this Work, *now ready*, contains illustrations of the Machine for converting Breeze and Tar into Fuel for heating the Retorts.

"The Author is well qualified to speak authoritatively upon the important subjects to which his pamphlet refers."—*Artizan.*

TO MANAGERS OF GAS-WORKS.

MANN'S IMPROVED SCRUBBER.

See Description and Sketch in "JOURNAL OF GAS LIGHTING," March 31, 1868.

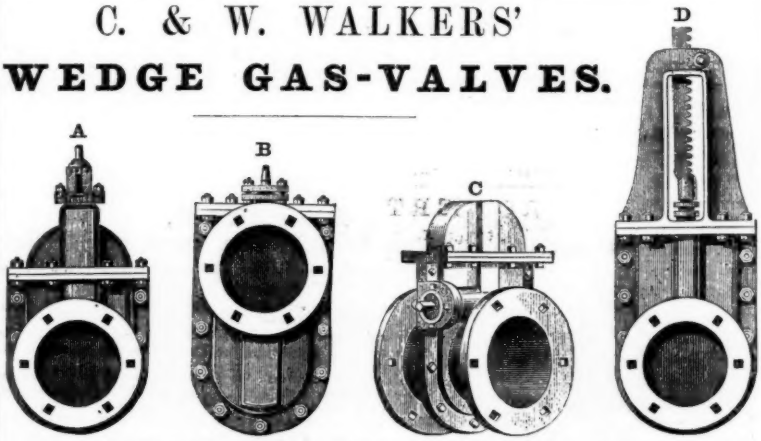
MESSRS. WESTWOOD & WRIGHTS are prepared to submit estimates for the supply and erection complete of the above, either in London or the Provinces.

MESSRS. W. & W. have already constructed several, which are now in successful operation, and give great satisfaction.

In cases where Scrubbers are already constructed, estimates will be submitted for altering and adapting to this principle.

Messrs. WESTWOOD and WRIGHTS,
No. 4, WHARF, CANAL ROAD, KINGSLAND ROAD, LONDON, N.
HOPE BOILER & GASOMETER WORKS,
BRIERLEY HILL, STAFFORDSHIRE, NEAR DUDLEY.

C. & W. WALKERS'
WEDGE GAS-VALVES.



These justly celebrated and well-known Gas-Valves of the most perfect workmanship and construction are made at as low a price as any other kind.

A—Above-ground Screw Gas-Valve, with improved indicator to show when open and shut, is the best kind of Valve for heavy pressures, such as the oxide of iron purification.
B—Under-ground Screw Gas-Valve.
C—Internal Rack Gas-Valve, with wrought-iron pinions.
D—Ordinary Rack and Pinion Valve, with strong undamageable racks and pinions.

MIDLAND IRON-WORKS,
DONNINGTON, NEWPORT, SHROPSHIRE.

PURIFICATION OF GAS.

FRODINGHAM IRONSTONE MINES,
NEAR
BRIGG, LINCOLNSHIRE.

Gas Companies can be supplied from these Mines with OXIDE of IRON, for the purification of Gas, on reasonable terms, and in any quantity that may be required.

This material is a natural Oxide, and is supplied to Gas Companies as taken from the Mines, without any admixture of deleterious matter. It acts freely, and will purify a much larger quantity of gas per ton, than the generality of the material now in use under this name.

It will be found highly beneficial in large establishments, where they are liable to be called upon occasionally to make a much greater quantity of gas than usual, as well as in small establishments where they are limited in space, as by its adoption a much larger quantity of gas can in much less time be purified with the same quantity of material.

Apply to Mr. JAMES SHERWOOD, at the Mines; or to Mr. LIVESEY, 6, Victoria Street, WESTMINSTER, London Agent.

NO NECESSITY
FOR
CANNEL COAL
If POPE and PEARSON'S GAS COAL is used.

WEST RIDING AND SILKSTONE COLLIERIES,
NEAR LEEDS.

NINETEEN YEARS PRACTICAL EXPERIENCE.

EDWIN BENTLEY,
RETORT SETTER,
29, LOWER HOPE STREET, HALIFAX,
YORKSHIRE.

Fire-Clay and Iron Retorts, Double and Single Grooved Brick Retorts, of every description.

Bentley's Improved D Brick Segment Retorts, 5 or 3 in one bed.

Testimonials and references on application.

TO INVENTORS AND PATENTEES.

MR. W. H. BENNETT, having had considerable experience in matters connected with Gas, Water, and Sanitary Improvement, begs to say that he continues to assist Inventors in the perfection of their designs, and to obtain for them PROVISIONAL PROTECTION, whereby their invention may be secured for Six Months; or LETTERS PATENT, which are granted for Fourteen Years.

Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.

Patents procured for Foreign Countries.

Information as to cost, &c., supplied gratuitously upon application to the advertiser, 42, Parliament Street, WESTMINSTER. [Office of the JOURNAL OF GAS LIGHTING, &c.]

BIRTLEY IRON WORKS,
CHESTER-LE-STREET,
DURHAM.

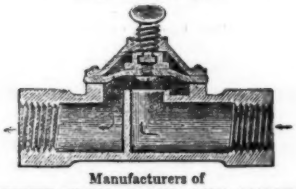
Manufactory for every description of Casting and Machinery for Gas-Works and Water-Works.

Warehouse in London for Cast-iron Pipes and Connexions of all sizes and in any quantity, Scott's Wharf, Bankside, Southwark.

Office in London, Mr. E. M. PERKINS, 78, Lombard Street.

THOMAS LAMBERT & SON,
SHORT STREET, LAMBETH, LONDON.

CARTER'S SAFETY GAS-VALVES,
Made to suit every Description of Fittings.
Section of Valve open.



Manufacturers of
WROUGHT-IRON PIPES AND FITTINGS,
SLUICE-VALVES & STOP-COCKS,
STOCKS, TAPS, AND DIES,
CHANDELIERS, PENDANTS, &c.
PATENT MERCURIAL GAS-REGULATORS.

F. SIMMONDS, Senr.,
221, KINGSLAND ROAD,
RETORT & BOILER SETTER

For the Chartered Gaslight Company, Brick Lane and Curtain Road Stations, and numerous Gaslight Companies, London and Provincial.

NO CONNEXION WITH ANY OTHER RETORT SETTER.
Estimates given with or without materials.

Now ready, price 21s., bound in cloth, lettered,
THE SIXTEENTH VOLUME
OF THE
JOURNAL OF GAS LIGHTING,
WATER SUPPLY, AND SANITAR IMPROVEMENT.
A Few Copies of Vols. II. to XV. are still on Sale.

London: WILLIAM B. KING, 11, Bolt Court, FLEET STREET, E.C.

Just Published, price 6d. each, by post 7d.; 4s. per doz., per post 4s. 6d.; or 25s. per 100,
PUBLIC LAMP ARBITRATION AT GRAVESEND.
A REPORT OF THE PROCEEDINGS
In the above important case.
London: WILLIAM B. KING, 11, Bolt Court, FLEET STREET, E.C.

METROPOLIS GAS SUPPLY.
Just published, price 4s., by post 4s. 6d., 324 pages, cloth, lettered,
A FULL & COMPLETE REPORT
of the Proceedings (including the Speeches, Discussions, and Evidence) before a Select Committee of the House of Commons—Session 1867—on the
METROPOLIS GAS ACT AMENDMENT BILL,
With the Discussion upon the Second Reading of the Bill and the Report presented by the Committee to the House.
Also the Proceedings before the same Committee upon the Bills of the
IMPERIAL & CHARTERED COMPANIES.

A Few Copies of the
PROCEEDINGS ON THE ARBITRATION
between the
GREAT CENTRAL GAS COMPANY
and
A. A. CROLL, ESQ.,
Are still for sale.
Price 5s., by post 5s. 6d., cloth, lettered.

London: WILLIAM B. KING, 11, Bolt Court, FLEET STREET, E.C.

METROPOLIS WATER SUPPLY.
Just published, price 3s. 6d., by post 4s., cloth, lettered,
REPORT OF PROCEEDINGS
Before the Select Committee of the House of Commons—Session 1867—appointed on the
EAST LONDON WATER BILLS,
Who were instructed to inquire into the operation and results of the
METROPOLIS WATER ACT, 1852,
With an Analysis of the Report presented by the Committee to the House.

London: WILLIAM B. KING, 11, Bolt Court, FLEET STREET, E.C.

Price 1s., by post 1s. 1d.,
ON THE
SUPPLY OF WATER TO THE METROPOLIS.
A Lecture Delivered at the Royal Institution of Great Britain,
By DR. FRANKLAND, F.R.S.

Price 1s. 6d., by post 1s. 7d.,
DEFECTS IN THE APPARATUS GENERALLY USED FOR THE DETERMINATION OF
BISULPHIDE OF CARBON
IN
COAL GAS,
And Description of a New Apparatus for its Estimation.
By ALFRED G. ANDERSON, Esq.,
Professor of Chemistry and Practical Chemistry in Queen's College, Birmingham.

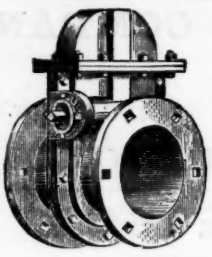
Price 1s. each, by post 1s. 1d.,
Proceedings in the present Session of Parliament on the
CAMBRIDGE GAS BILL,
AND
GREAT GRIMSBY & RICHMOND GAS BILLS.

Price 2s., by post 2s. 1d.,
SOUTHPORT, SHEFFIELD, PAIGNTON, LEEDS, & REDHILL WATER BILLS.

Price 8d. each, or 6s. per doz.,
Proceedings at Audit of Accounts of
SLOUGH LOCAL BOARD OF HEALTH.

LONDON: WILLIAM B. KING, 11, Bolt Court, Fleet Street, E.C.

ELEVENTH THOUSAND.
AGRICULTURAL VALUE
OF
REFUSE GAS LIME.
BY PROFESSOR VOELCKER,
Professor of Chemistry to the Royal Agricultural Society of England.
Price 10s. per 100, or by post, 10s. 6d.
London: WILLIAM B. KING, 11, Bolt Court, FLEET STREET, E.C.



REDUCED PRICES OF
B. DONKIN & CO.'S
IMPROVED GAS VALVES
WITH WROUGHT-IRON PINIONS
from 2 inches to 18 inches, price 9s. 6d. to 12s. per inch diameter
List of prices, with full dimensions of all sizes up to 36 inches, to be had on application.
These Valves are all proved on both sides to 30 lbs. on the square inch before leaving the works, and are always kept in stock.
Valves made with Outside Racks to order. Also, Screw Water-Valves with Gun-Metal Faces.
B. DONKIN & CO.,
ENGINEERS,
NEAR GRANGE ROAD, BERMONDSEY.

F. & C. OSLER,
45, OXFORD STREET, LONDON;
Manufactory—Broad Street, Birmingham—Established 1807,
MANUFACTURERS OF GLASS CHANDELIERS, GLASS LUSTRES, TABLE GLASS, &c. &c.
ELEGANT CRYSTAL GLASS CHANDELIERS, for GAS, from £4 upwards
(Made from "REGISTERED" DESIGNS), with GLASS BRANCHES, &c.; suitable for DRAWING-ROOMS and BALL-ROOMS. The more extensive use of GAS in private dwellings has induced Messrs. OSLER to direct their particular attention to the manufacture of this class of articles—which, with a view to their general adoption, are offered at very moderate prices. Purchasers can select from a great variety of patterns, to which additions are being constantly made.
THEATRES, CONCERT, ASSEMBLY, AND BALL ROOMS LIGHTED BY ESTIMATE ON THE LOWEST TERMS.

WALTER FORD,
159, GRAY'S INN ROAD, LONDON.
MANUFACTURER OF WET AND DRY GAS-METERS, STATION-METERS, GOVERNORS, &c. &c.
Sole Manufacturer of **PADDON'S PATENT STREET-LAMP REGULATORS,** for insuring any required consumption. These Regulators are in general and increasing use, and references can be given to Gas Companies who use them for every Lamp.

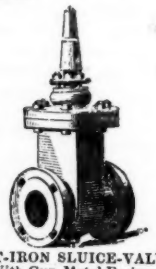
MATHER AND PLATT,
SALFORD IRON-WORKS, MANCHESTER,
Beg to call attention to their Revised List of Prices of VALVES, TAPS, &c. They also request the notice of Water Companies and Hydraulic Engineers to their IMPROVED SLUICE-VALVES for Water. The Slides have Gun-Metal Facings, are of wedge form, and when screwed down are tight on both sides.

GUN-METAL TAPS.

Bore.	Price.
inch	£0 4 0
,,	0 4 6
,,	0 6 0
,,	0 8 6
,,	0 11 0
,,	0 14 0
,,	0 18 0
,,	1 2 6

CAST-IRON STEAM-VALVES.
With Gun-Metal Valves & Seatings.

Bore.	Price.
2 inches	£1 2 6
3 ,,	1 17 6
4 ,,	2 15 0
5 ,,	3 15 0
6 ,,	4 17 0
7 ,,	6 0 0
8 ,,	7 5 0
9 ,,	8 15 0
10 ,,	10 10 0
11 ,,	12 5 0
12 ,,	14 0 0



CAST-IRON SLUICE-VALVES.
With Gun-Metal Facings.

Bore.	Price.
2 inches	£1 10 0
3 ,,	2 5 0
4 ,,	3 0 0
5 ,,	3 16 0
6 ,,	4 14 0
7 ,,	5 14 0
8 ,,	6 16 0
9 ,,	8 0 0
10 ,,	9 6 0
11 ,,	10 14 0
12 ,,	12 4 0

Prices and particulars of all other forms and sizes can be had on application.

ROBERT DEMPSTER,
Gas Engineer and Contractor, Rose Mount Foundry, Elland, near Halifax.

R. D. recommends his Fire-Brick Retorts to Engineers and Managers of Gas Companies; they last from 10 to 12 years.

Iron and Fire-Clay Retorts.
Annular and Pipe Condensers.
Scrubbers and Purifiers, all sizes.
Steam-Engines and Exhausters.
Hydraulic Centre-Valves.
Station-Meters and Governors.
Photometers & Pressure-Gauges.
Lamp-posts and Brackets.
Cast-Iron Mains and Syphons.
Wrought-Iron Tubes, Water Tanks.
Wrought-Iron & Cast-Iron Roofs.
Gasholders, Single-Lift or Telescopic.
Gas Castings of every description.
Retort Setters and Fitters sent to all parts of the country.
Wood Sieves for Purifiers.

Plans and Specifications prepared.

JOSEPH RATCLIFF & SONS,
BRASS & IRON FOUNDERS,
Manufacturers of
BRASS GAS-FITTINGS, CHANDELIERS, &c.,
In various styles; also of
PATENT WELDED WROUGHT-IRON TUBES AND FITTINGS.
Catalogues and prices on application at the
WORKS AND SHOW-ROOMS,
NEW CHURCH STREET, SUMMER LANE, BIRMINGHAM.

Mr. H. GORE,
CONSULTING GAS ENGINEER,
20, ALFRED PLACE, BEDFORD SQUARE, LONDON, W.C.
Plans and Specifications prepared for the Erection of NEW or ALTERATION and IMPROVEMENT of EXISTING WORKS. Valuations made.
DESIGNS FOR WORKS & MACHINERY
specially adapted for India, China, & South America.
Drawings and Specifications for improved RETORT SETTINGS.

PARIS EXHIBITION,

1867.

HONOURABLE MENTION.

NEWTON AND BRADDOCK,

GLOBE METER-WORKS, OLDHAM,

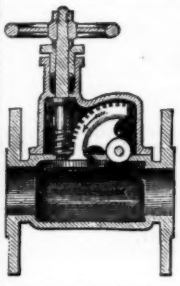
Manufacturers of

STATION METERS for GAS-WORKS, CONSUMERS METERS, GOVERNORS,

GAUGES, PRESSURE AND EXHAUSTER REGISTERS,

EXHAUSTER REGULATORS, &c.

N.B.—The flanges of the plates for the Square Station-Meters are planed so as to ensure perfect joints—guaranteed not to leak.



WARNER'S

NEW PATENT

QUADRANT-MOTION SLUICE or GAS VALVE.

It will be seen, by reference to the drawing, that by this simple method a clear water-way is obtained, the disc being drawn by the screw or worm entirely out of the way; thus all the advantages of the ordinary sluice-valve are obtained at much less cost, and the liability to set fast and get out of order entirely obviated. They are adapted for all purposes for hot or cold water, and equally suited for high or low pressure; and in case of need of repair, a new valve-seat can be applied without removing the body or case of the valve.

Particulars of the Quadrant Valve, also of Hydraulic Machinery, High or Low pressure Cocks, Water Closets, Gas-fitting in all its branches, and general Plumbers' Brass work, can be obtained upon application to

JOHN WARNER & SONS, CRIPPLEGATE, LONDON,

(Brass and Bell Founders to Her Majesty,)

HYDRAULIC ENGINEERS.

SCHOLL'S

PATENT PLATINUM

GASLIGHT PERFECTER.

Extract from Report by Dr. Letheby:—

"The results have been very remarkable, for they show an average increase of 63 per cent. on the illuminating power of the gas. I am of opinion, therefore, that the invention is of great practical value."

Price 1s. each for Fish-tail Burners.

To be had retail of Gas-Fitters and Ironmongers, and wholesale of

JOHN SCHOLL, 41 & 42, BERWICK STREET, OXFORD STREET

LONDON, W.

Terms on application. N.B.—A specimen sent free on receipt of Twelve stamps.

*** Further testimonials from Drs. Frankland and Crooks, showing the great practical value of this invention, will be shortly published.

JAMES MILNE & SON,

GAS ENGINEERS,

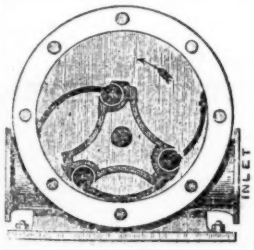
Gas-Meter, Gas Apparatus, and Gasfittings Manufacturers,

EDINBURGH, AND

2, KING EDWARD STREET,

NEWGATE STREET, LONDON.

Station-Meters, Governors, Consumers Meters, Gas Lustres, Chandeliers, Brackets, &c., and every description of Gasfittings and Gas Apparatus.



CHARLES HORSLEY'S

PATENT

GAS EXHAUSTER.

(From 250 Feet to 200,000 Feet per Hour.)

Also,

ROTARY TAR, OIL, AND LIQUOR PUMPS.

For particulars and prices apply to the Patentee,

22, Wharf Road, City Road, London, N.

SAMUEL CUTLER & SON,

CONTRACTING GAS ENGINEERS, &c.

MANUFACTURERS OF GASHOLDERS, TANKS, PURIFIERS,

AND ALL DESCRIPTIONS OF GAS-MAKING APPARATUS.

Iron Roofs, and General Iron Work. Mains Supplied and Laid.

S. C. & Son supply every requirement for a Gas-Work, and keep in stock Retort Lids, Cotters, Barrows, Scoops, Bolts and Nuts, &c. &c.

PROVIDENCE IRON-WORKS, MILLWALL, LONDON, E.

Lately published, in two vols. 8vo., price 36s.,
A very Complete Treatise on the

CHEMISTRY OF FUEL:

Being a Part of

KNAPP'S CHEMICAL TECHNOLOGY;

OR,

CHEMISTRY IN ITS APPLICATIONS TO THE ARTS AND MANUFACTURES.

By Thomas Richardson and Henry Watts.

Contents:—Nature and Properties of Fuel; Effect of Heat upon Fuel; Relative Value of Fuel; Application of Fuel to the Production of Heat; Practical Value of Fuel; Secondary Products obtained from Fuel; Application of Fuel to the Production of Light; Relative Value of Different Sources of Light; Secondary Products of the Gas Manufacture. Appendix: What is Coal, in a geological, mining, mineralogical, microscopical, and technical point of view?

H. Bailliere, 219, Regent Street, London.

THE

PROPOSED WATER SUPPLY

FOR

THE METROPOLIS.

Just published, price 6d., by post 7d.,

A LECTURE

DELIVERED AT THE

ROYAL INSTITUTION OF GREAT BRITAIN,

On Friday, April 3, 1868,

By Dr. FRANKLAND, F.R.S.,

ON THE

Proposed Water Supply for the Metropolis.

Just Published, price 1s., by post 1s. 1d.,

EXPERIMENTS ON THE

FLOW OF GAS IN LONG PIPES,

MADE IN THE WORKS OF THE

PARIS GAS COMPANY,

By M. Arson, Engineer-in-Chief of the Company,

Assisted by MM. Monard and Honoré.

Translated from the Memoirs of the Society of Civil Engineers of Paris,

By Dr. Pole, F.R.S., Mem. Inst. C.E.

London: William B. King, 11, Bolt Court, Fleet Street, E.C.

LAMP-POSTS—Plain & Ornamental.
DWARF GAS-PILLARS—Do., do.
LAMP-BRACKETS—Do., do.
LAMPS, in Copper, Tin, and Iron—Do., do.
NUMBERS for STREET-LAMPS.
FOUNTAINS—Garden and Drinking.
VASES—for Gardens, Terraces, &c.

A Book of the newest DESIGNS for these will be forwarded free on receipt of 3s. 6d. in stamps, which will be allowed on first order.

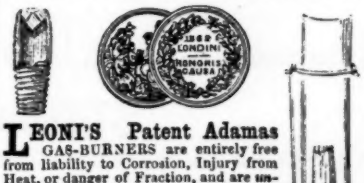
TURNER AND ALLEN,

Founders & Contractors,

201, UPPER THAMES STREET, LONDON.

UNIVERSAL PARIS EXHIBITION, 1867.

PRIZE MEDAL in Class 24—Heating and Lighting—for Leoni's Patent Gas-Burners and Gas-Stoves.



LEONI'S Patent Adamas GAS-BURNERS are entirely free from liability to Corrosion, Injury from Heat, or danger of Fraction, and are *unalterable* in the dimensions of their Apertures. Uniformity in the consumption of gas is obtained by the process of manufacture, which insures that the burners shall be precisely similar in pattern.

Net Cash Price, 8s. per gross.

Patentee and Sole Manufacturer, S. Leoni, 31, St. Paul Street, New North Road, London, N.

W. J. SIMMONDS,

Retort and Boiler Setter and Contractor for Gas-Works in general,

7R, SOUTH STREET, NEW NORTH ROAD,

Islington, London, N.

Upwards of 16 years Retort Setter to the Chartered Gas Company, Brick Lane and Curtain Road Stations.

Materials supplied on reasonable terms if required, or labour only.

No connexion with any other Retort Setter.

N.B.—Orders to be addressed as above.

NATURAL

HYDRATED OXIDE of IRON

constantly on Sale. Apply to

MARTYN DENNIS AND CO.,

LIVERPOOL.

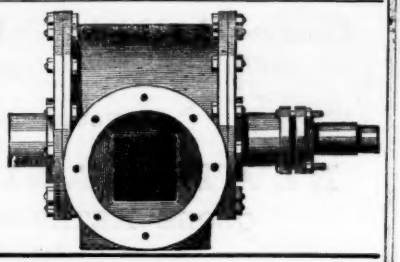
ROTATORY AND DOUBLE-ACTING GAS-EXHAUSTERS,

with many recent improvements, from 1500 to 150,000 cubic feet per Hour.

JAMES BURTON, SONS, & WALLER,

MAKERS OF ENGINES, MACHINERY, and IRONWORK for GAS-WORKS,
efficient and durable TAR, LIQUOR, and SYPHON PUMPS,
GAS-VALVES, with or without Wedges, worked with powerful Worm and Rack,
SELF-ACTING BY-PASS VALVES, with Lid and Relieving Lever,
ROTATORY, TUMBLER, and CAPILLARY WATER DISTRIBUTORS for SCRUBBERS.
SMALL-SIZE EXHAUSTERS KEPT IN STOCK.

JOHN'S PLACE, HOLLAND STREET, SOUTHWARK, LONDON, S.E.



KING BROTHERS,

STOURBRIDGE FIRE-BRICK AND RETORT WORKS.

KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them FREE FROM CRACKS AND CORRECT IN FORM. By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

Retort Ovens, Fire-Bricks, Guards, Saddles, Rabbitted Bars, Flues, and Quarries, are all Manufactured of the same quality of Clay.
Every Retort and Brick is branded "King Brothers, Stourbridge."

Agent in Ireland—Mr. JAMES FURNISS, No. 3, FOWNES STREET, DUBLIN.

WILLIAM INGHAM AND SONS,

WORTLEY FIRE-BRICK AND RETORT WORKS,

Near

Leeds.

W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of
RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY
beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas.
The Works are of such magnitude as to ensure the prompt execution of orders to any extent.

Estimates for Setting, or Bricklayers sent when required.

GAS OVENS IN SEGMENTS OF EQUAL QUALITY.

A large stock of Fire-Bricks, Fire-Clay, Terra Cotta, and Drain-Pipes of all sizes kept in London at CHRISTIE & CO.'s Wharf, 64, Bankside, Southwark, where all particulars of Prices, &c., may be obtained.

N.B.—*Export orders continue to have prompt attention.*

THE GAS-METER COMPANY

(LIMITED), LONDON,

(Successors to CROLL, RAIT, and CO., LONDON, and WEST and GREGSON, OLDHAM.)

MANUFACTURE

STATION-METERS & GOVERNORS

At their Oldham Establishment, which has long possessed the reputation of supplying this description of apparatus of the most perfect construction and appropriate design.

CONSUMERS GAS-METERS IN CAST-IRON & TINNED SHEET-IRON CASES.

STREET GOVERNORS, PRESSURE and EXHAUST REGISTERS, TEST GASHOLDERS,

AND EXPERIMENTAL GAS APPARATUS GENERALLY.

For information, &c., apply to

W. ARCHER, Manager, Meter Factory, OLDHAM;

OR TO

GEORGE RAIT, Managing Director, KINGSLAND ROAD, LONDON.

E. J. & J. PEARSON,

DELPH & TINTAM ABBEY FIRE-CLAY & BRICK-WORKS,

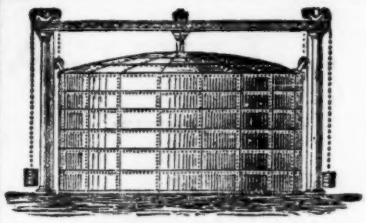
STOURBRIDGE,

PROPRIETORS OF

BEST GLASS-HOUSE POT & CRUCIBLE CLAY;

MANUFACTURERS OF

GLASS-HOUSE POTS, CRUCIBLES, GAS-RETORTS, & FIRE-BRICKS OF EVERY DESCRIPTION.



IMPROVED GAS APPARATUS,

FOR TOWNS, VILLAGES, &c.,

INVENTED AND MANUFACTURED BY

W. C. HOLMES & CO.,

WHITESTONE IRON-WORKS, HUDDERSFIELD.

WILL BE SENT ON APPLICATION:—

PLANS, SPECIFICATIONS, and PRICES of GAS APPARATUS;

PLANS, SPECIFICATIONS, and ESTIMATES of the requisite BUILDINGS for each size of Apparatus;

PLANS of the IMPROVED ANNULAR CONDENSERS;

PLANS of the COMBINED PURIFYING APPARATUS, so eminently adapted for Exportation.

LONDON OFFICES—56, GRACECHURCH STREET, CITY.

*** *Please address letters to the London Offices.*

SILVER MEDAL, INTERNATIONAL EXHIBITION, PARIS, 1867.

LLOYD AND LLOYD,

ALBION TUBE-WORKS, BIRMINGHAM,

MANUFACTURERS OF

WROUGHT-IRON TUBES & FITTINGS,

PLAIN, GALVANIZED, & ENAMELLED, for Gas, Steam, and Water, from ⅛ in. to 6 in. bore.

STOCKS, TAPS, and DIES, GUN METAL GLAND-COCKS, WATER-GAUGES, &c.

PATENT LAP-WELDED IRON TUBES

For Locomotive and Marine Boilers, &c.

LONDON WAREHOUSE—Nº 66, QUEEN STREET, E.C.

LIVERPOOL: No. 4, Cooper's Row, and Bold's Yard, Strand Street.

MANCHESTER: Barlow's Croft, Chapel Street, Salford.

THE ONLY COMPLETE CAST-IRON CASED DRY GAS-METER,

PATENTED MARCH 31, 1865.

Gas Engineers and others will find that the above Meter is made of the most durable material, also that it can be repaired at a fraction of the cost of any other Meter now manufactured; all the interior fittings, as well as the case, being fitted together with screws.

Drawings explanatory of the above on application.

SOLE MANUFACTURERS:

FULLERTON, SON, & CO., ABBEY MOUNT WORKS, EDINBURGH.

Station-Meters and Gas Apparatus, Consumers Wet Gas-Meters in Cast-Iron, and Dry in Tin Plate Cases.

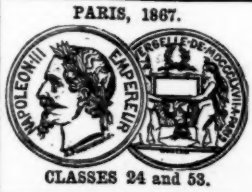
ORLANDO BROTHERS' SELF-ACTING DISTRICT GOVERNOR.

Prices, according to size, can be obtained upon application to

Mr. WILLIAM ARCHER,

METER COMPANY'S WORKS, OLDHAM.

PARIS, 1867.



CLASSES 24 and 53.

WILLIAM SUGG,

GAS ENGINEER.

LONDON, 1862.

CLASSES 13 and 31.

PUBLIC LAMP GOVERNORS, LEVER COCKS, AND POLE LIGHTERS,

LAMP METERS AND BOXES.

The Catalogue and Lists of Prices for all the New Instruments and Apparatus of his Manufacture are now ready, and may be had on application, per post or otherwise, at

VINCENT WORKS, VINCENT STREET, WESTMINSTER, S.W.

THE

GAS-METER COMPANY, LIMITED,

A. ANGUS CROLL, C.E., Chairman.

GEORGE RAIT, MANAGING DIRECTOR. T. G. BARLOW, C.E., CONSULTING ENGINEER.

CROLL'S DRY GAS-METER,

(Invented and Patented in 1844, since which time 200,000 of these Meters have been manufactured by Mr. CROLL,)

Obtained **PRIZE MEDALS** at the EXHIBITIONS of London, 1851, of New York, 1853, and Paris, 1855.

IMPROVED in 1858,

And was awarded at the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for

"GOOD CONSTRUCTION and SOUND WORKMANSHIP."

Now manufactured by the GAS-METER COMPANY, LIMITED, KINGSLAND ROAD, LONDON; and, for the purpose of obtaining greater accuracy in all its parts, the most perfect machinery has been adopted, "By which the construction of the Meter is much simplified, while its liability to get out of order is diminished." (See report of T. G. BARLOW, Esq., C.E.)

ALEXANDER WRIGHT & CO.,

55 and 55A, MILLBANK STREET, WESTMINSTER, S.W.,

MANUFACTURERS OF

COMPENSATING & OTHER WET & IMPROVED DRY GAS-METERS,

Of the best material and workmanship, carefully adjusted to meet the requirements of the SALES OF GAS ACT.

STATION-METERS & GOVERNORS,

WRIGHT'S REGISTERING PRESSURE-GAUGE, EXHAUSTER REGISTER, & REGULATOR

STANDARD TEST GASHOLDERS;

Consumers' Governors; Inspectors' Pocket, King's, and all other kinds of Pressure-Gauges; Thermometers for Condensers, Pressure Registers, &c., &c.

STANDARD PHOTOMETRIC AND OTHER TESTING APPARATUS,

Employed by the best experimenters in this country and on the Continent, and by the Gas Testers in the London districts.

STREET-LAMP REGULATORS OF THE BEST CONSTRUCTION,

Adjusted to any desired consumption.

R. LAIDLAW & SON,

GAS ENGINEERS, CONTRACTORS, IRON & BRASS FOUNDERS,

Iron-Works and Foundries, GLASGOW, **(190, Strand,) LONDON,** **Meter-Works & Brass Foundry, EDINBURGH,**

MANUFACTURERS OF

GASOMETERS AND GAS APPARATUS OF EVERY DESCRIPTION;

CAST-IRON PIPES, all sizes, cast in DRY SAND and VERTICALLY by PATENT MACHINERY;

IRON ROOFS, COLUMNS, BEAMS, and GIRDERS; BOILERS, TANKS, and CISTERNS;

VALVES, Screw, Rack and Pinion, &c., for Gas and Water, with Iron or Gun-Metal Facings, &c.;

WROUGHT-IRON TUBE and FITTINGS for Gas, Water, or Steam;

GAS-METERS (Wet and Dry) of the most approved Construction, STATION-METERS, GOVERNORS, &c.;

GASELIERS, BRACKETS, PENDANTS, PILLARS, and GAS-FITTINGS of every description;

LAMP-POSTS and LANTERNS for Streets, &c.

D. HULETT and CO., 55 and 56, HIGH HOLBORN, LONDON,

PATENTEES and MANUFACTURERS of the ONLY GOOD MERCURIAL GAS REGULATOR,

invite the attention of Gas Companies and the Trade generally to their Improved GAS-METERS, which they warrant equal to any in Quality, Workmanship, and Simplicity of Construction, and the only Meters from which Gas cannot be obtained without being duly registered.

MANUFACTURERS OF

GAS CHANDELIERS, GLASS LUSTRES, HALL LANTERNS, VESTIBULES, BRACKETS, PENDANTS;

DOUBLE CONE, ALBERT, SHADOWLESS, & EVERY DESCRIPTION OF BURNER, UNION JETS, BATSWINGS, ETC.;

IMPROVED FULL-WAY CARTER'S VALVES (much approved of);

GAS-STOVES, and every article connected with Gas Apparatus.

CAST & WROUGHT-IRON PIPE BLACK & GALVANIZED. COPPER, TIN, BRASS, & COMPOSITION TUBING.

D. HULETT'S IMPROVED SERVICE CLEANSER

for clearing out Mains, Services, and Interior Fittings—65s. net.

Boyle's Patent Silvered Glass Combination Reflectors and Outside Lanterns.

Sole Manufacturers of Church and Mann's Photometer.

Large Pattern Books with every description of Gas-Fittings, Chandeliers, &c., with complete Book of Prices, 12s.

London: Printed by WILLIAM BOUGHTON KING (at the office of Clayton and Co., 17, Bouverie Street, Fleet Street); and published by him at No. 11, Bolt Court, Fleet Street, in the City of London.—Tuesday, June 23, 1868.